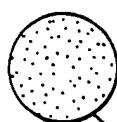


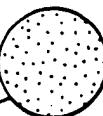


FIG. 1



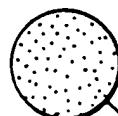
[SEQ. ID NO: 3]

X-C-C-T-T-G-A-G-A-T-T-T-C-C-C-T-C
5' 3'



G-G-A-A-C-T-C-T-A-A-A-G-G-G-A-G-X
3' 5'

[SEQ. ID NO: 4]



X-C-C-T-T-G-A-G-A-T-T-T-C-C-C-T-C
G-G-A-A-C-T-C-T-A-A-A-G-G-G-A-G-X

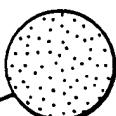


FIG. 2

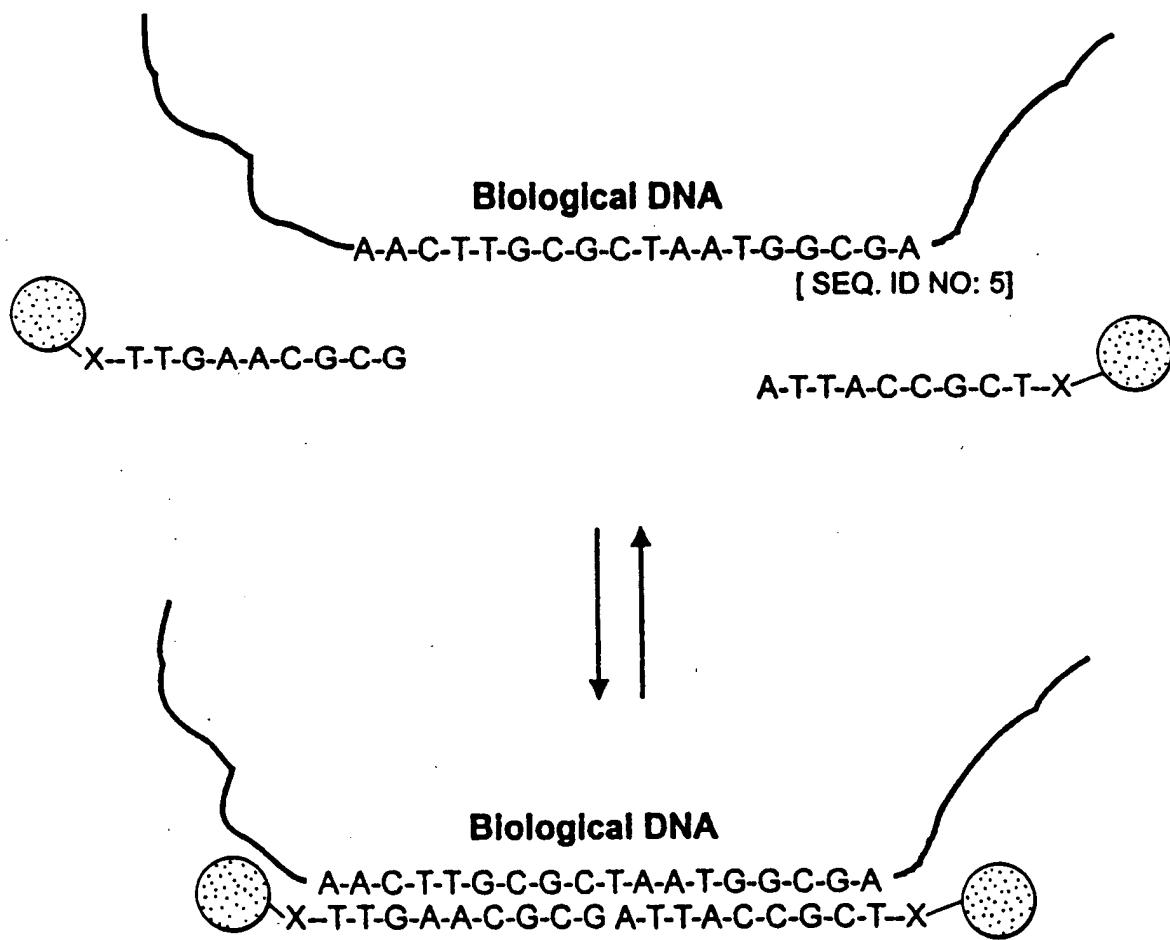


FIG. 3

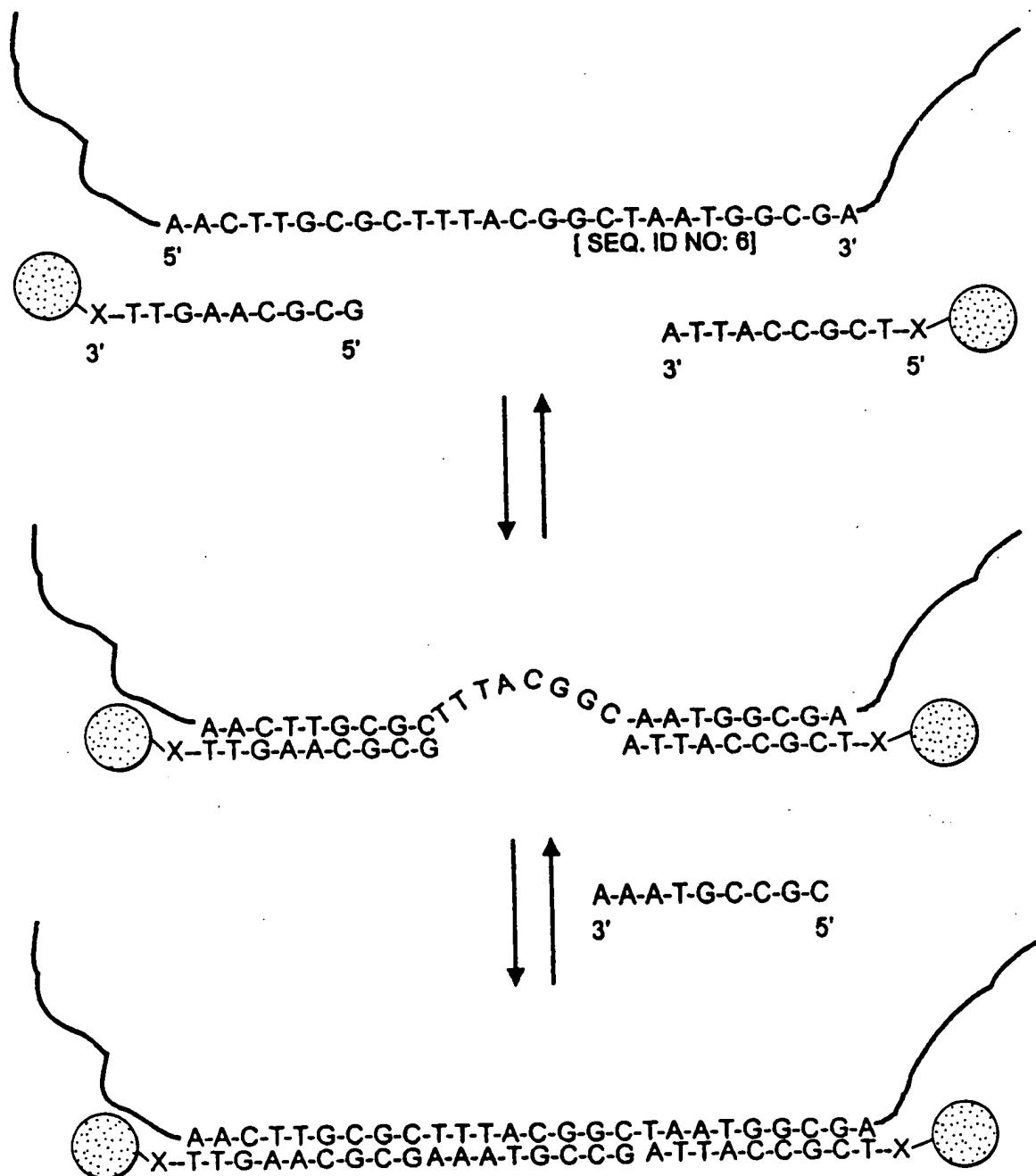


FIG. 4

Linking oligonucleotide

A-T-G-G-C-A-A-C-T-A-T-A-C-G-C-G-C-T-A-G
A-T-A-T-G-C-G-C-G-A-T-C-T-C-A-G-C-A-A-A
[SEQ. ID NO: 2] ↗
3' 5'
[SEQ. ID NO: 1] ↗
3' 5'

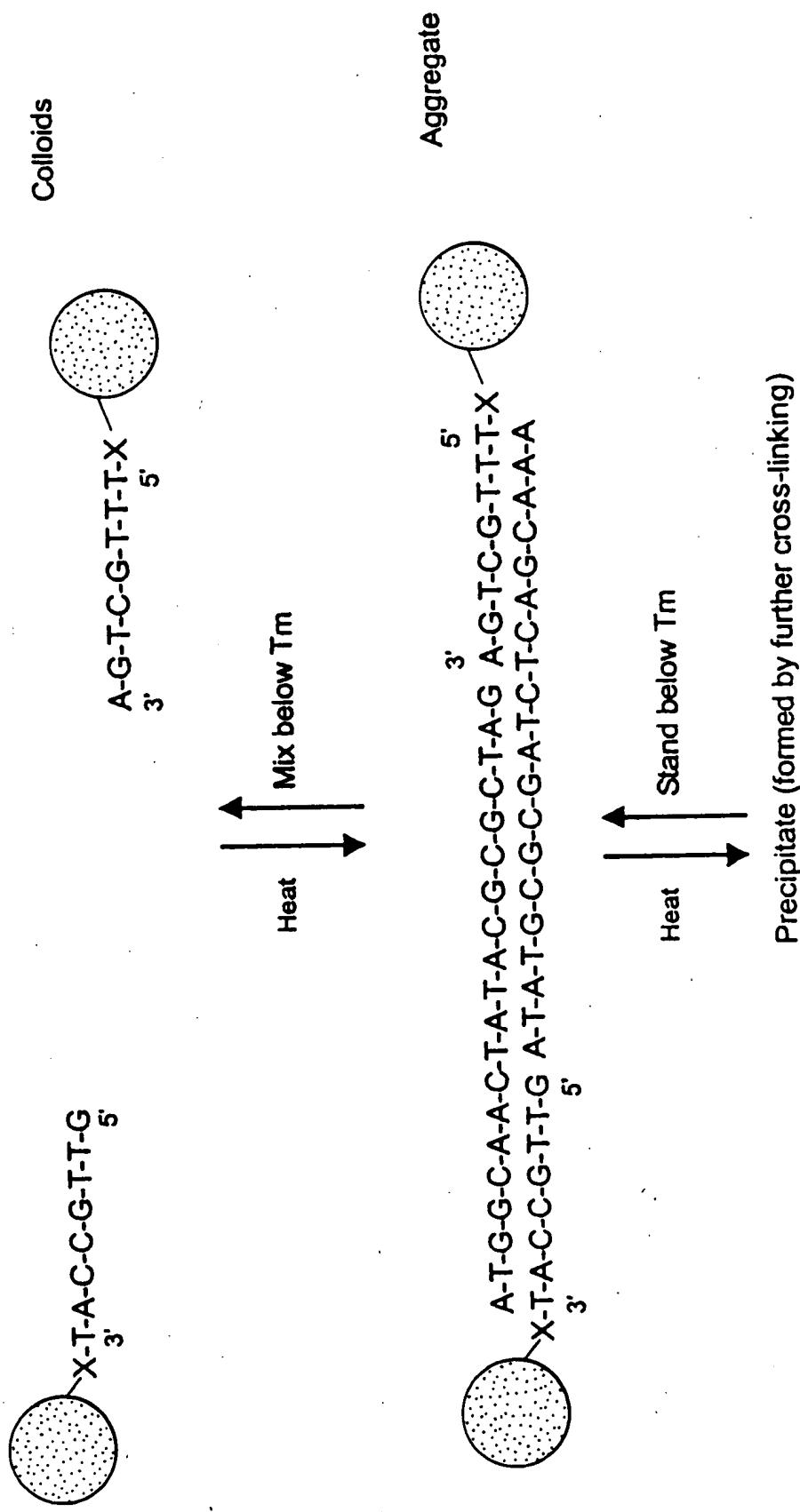
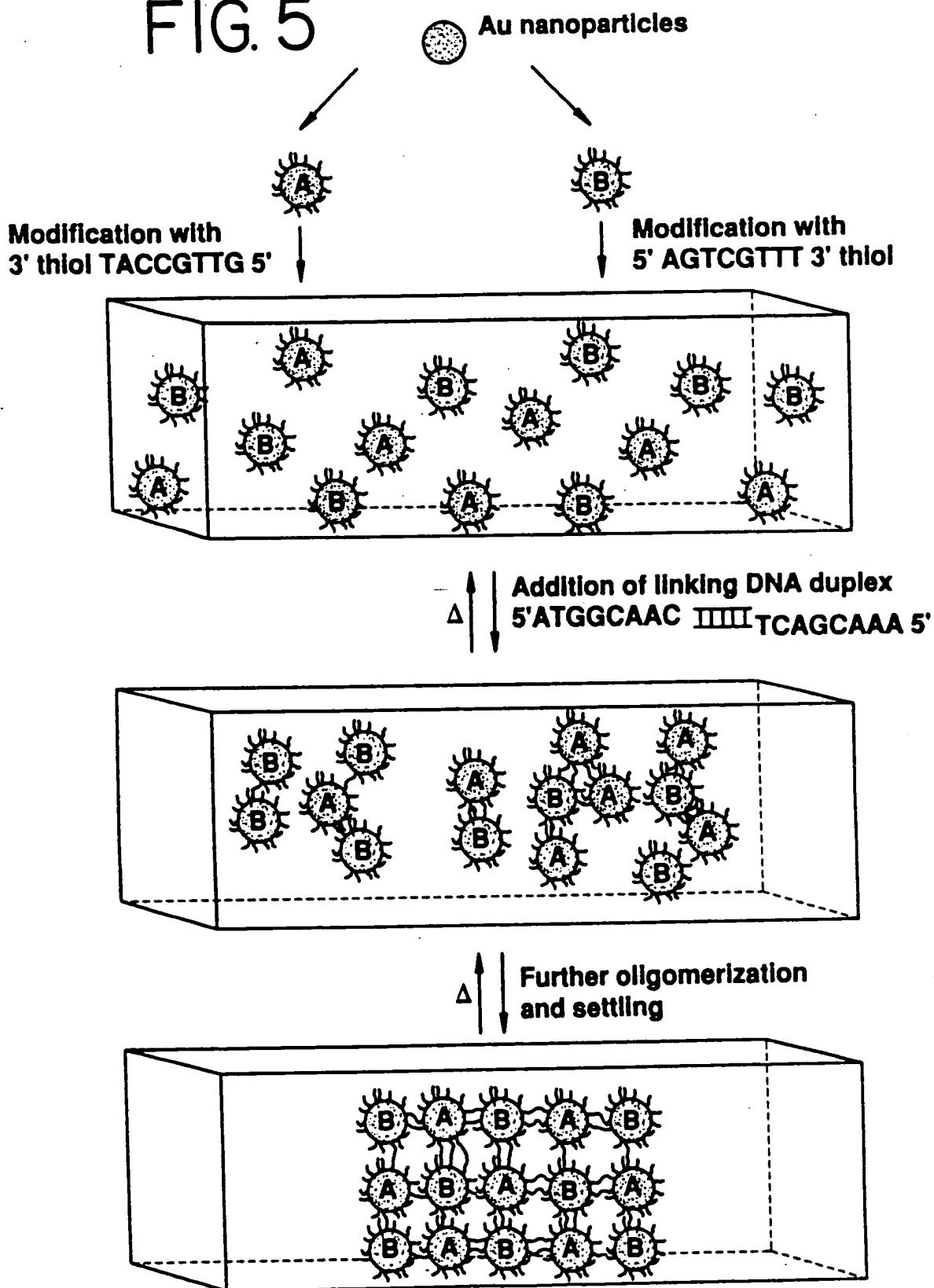


FIG. 5



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FIG. 6A FIG. 6B FIG. 6C



FIG. 7

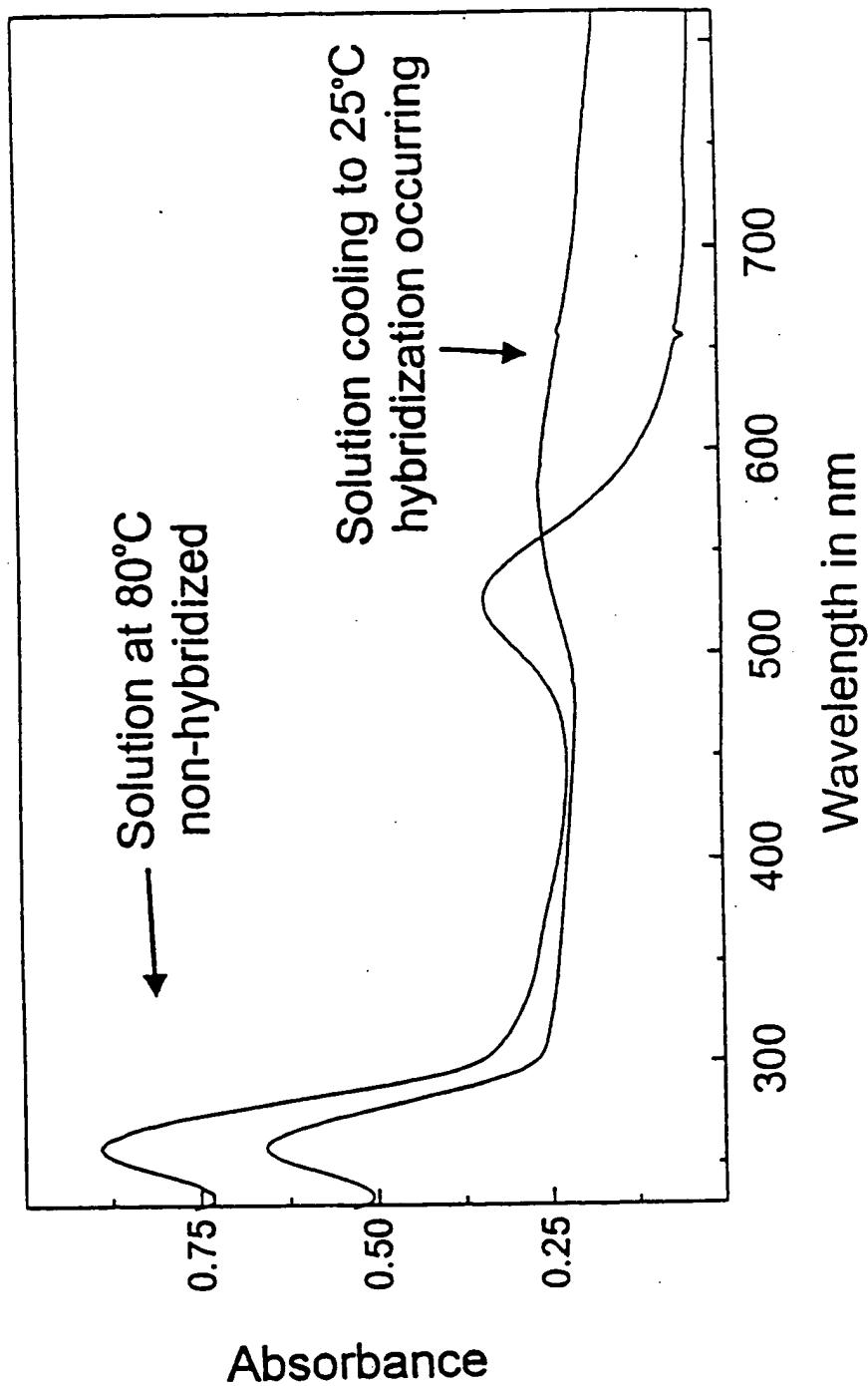


FIG. 8A

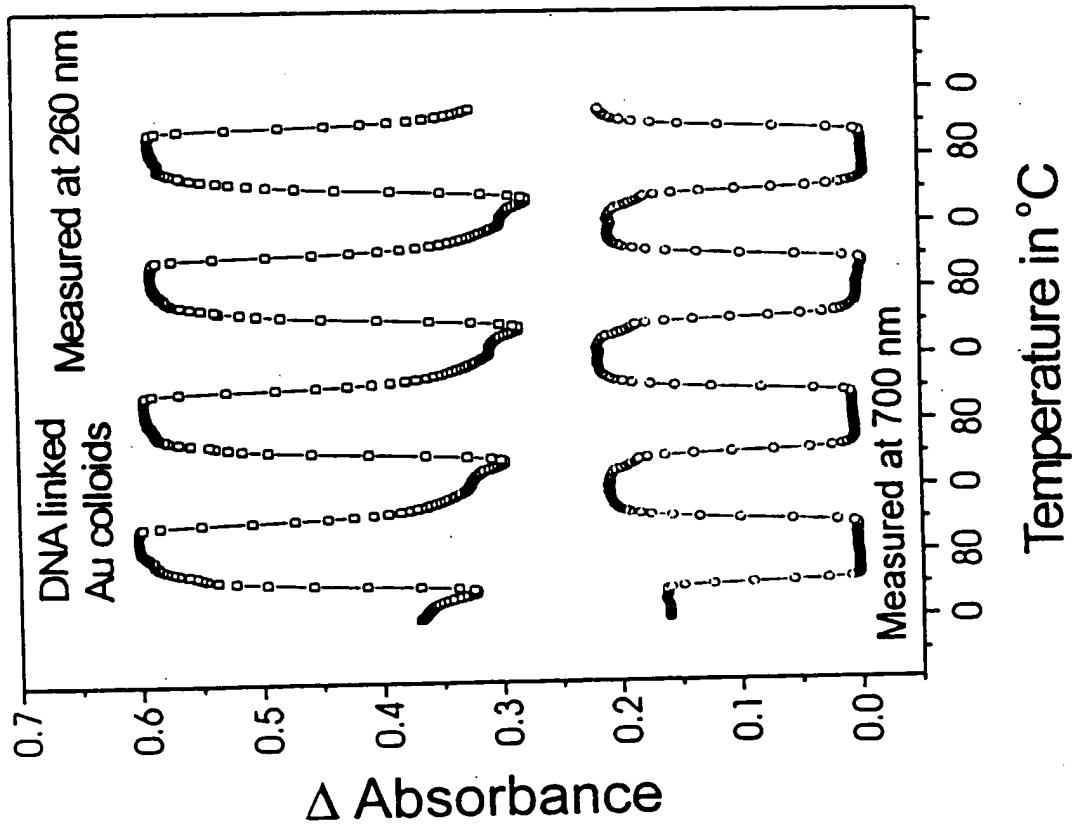


FIG. 8B

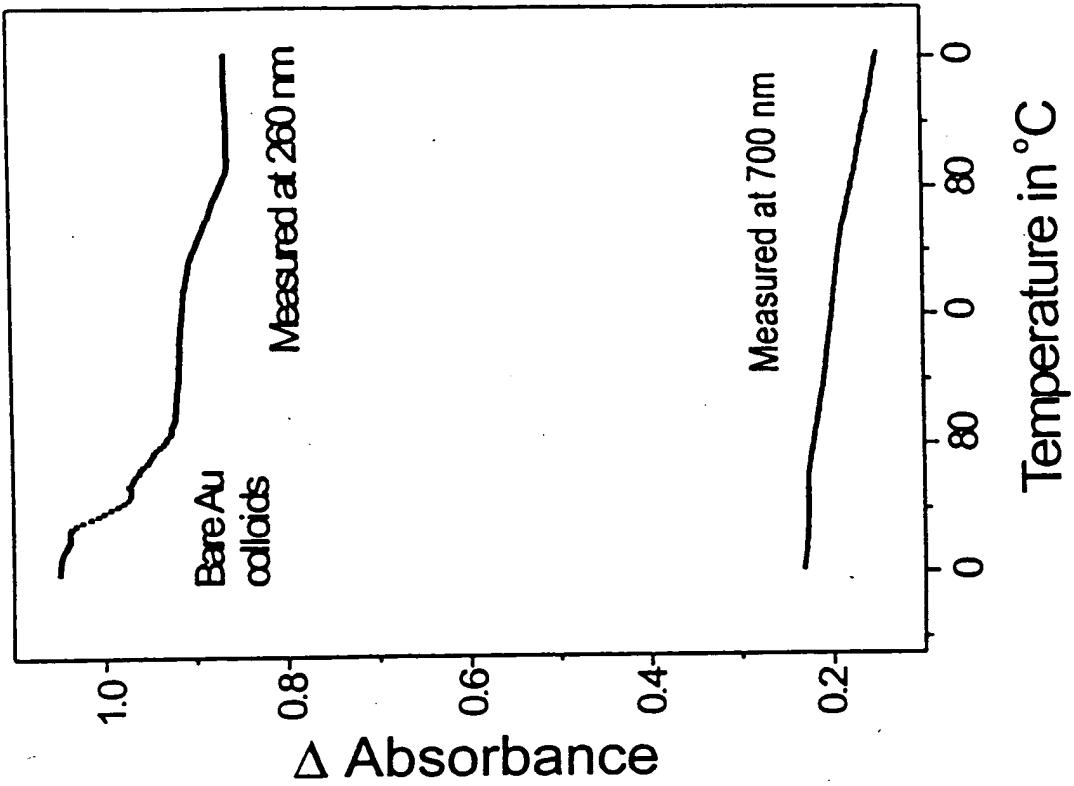


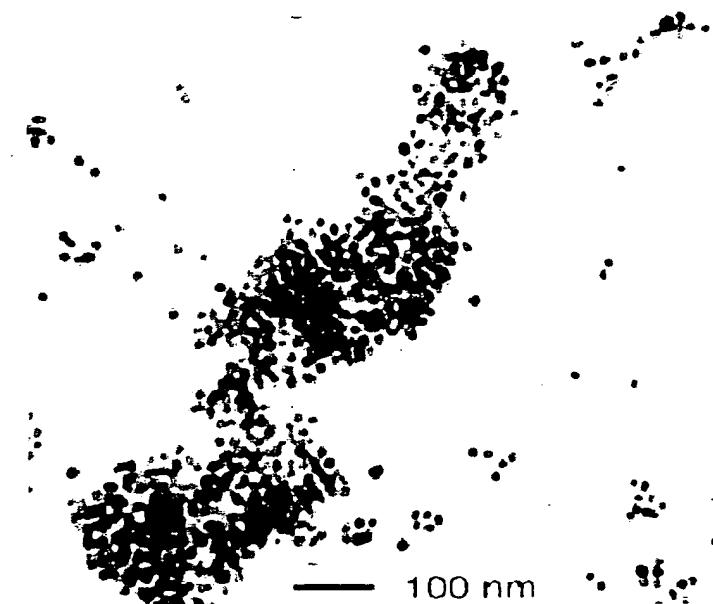
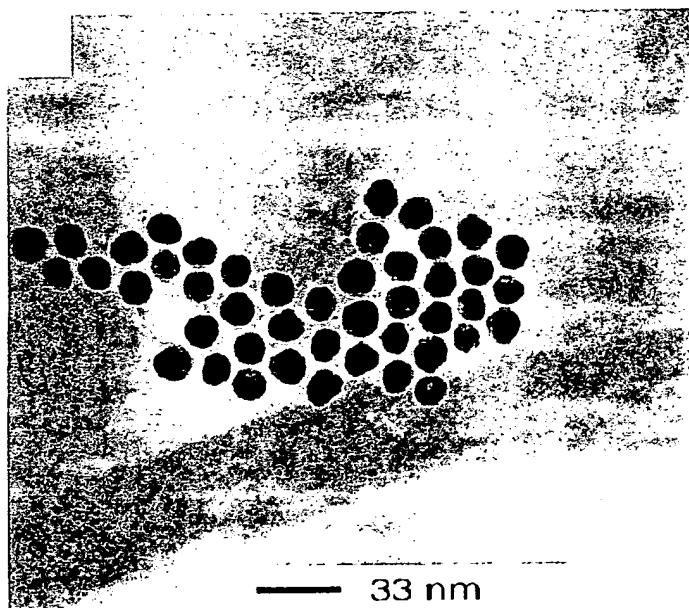
FIG. 9A**FIG. 9B**

FIG. 10

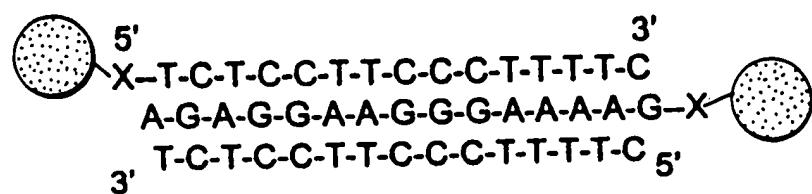
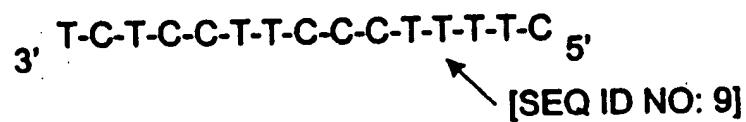
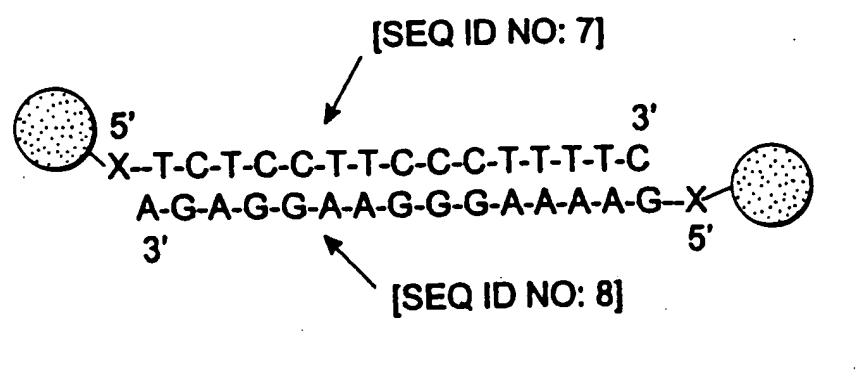


FIG. 11

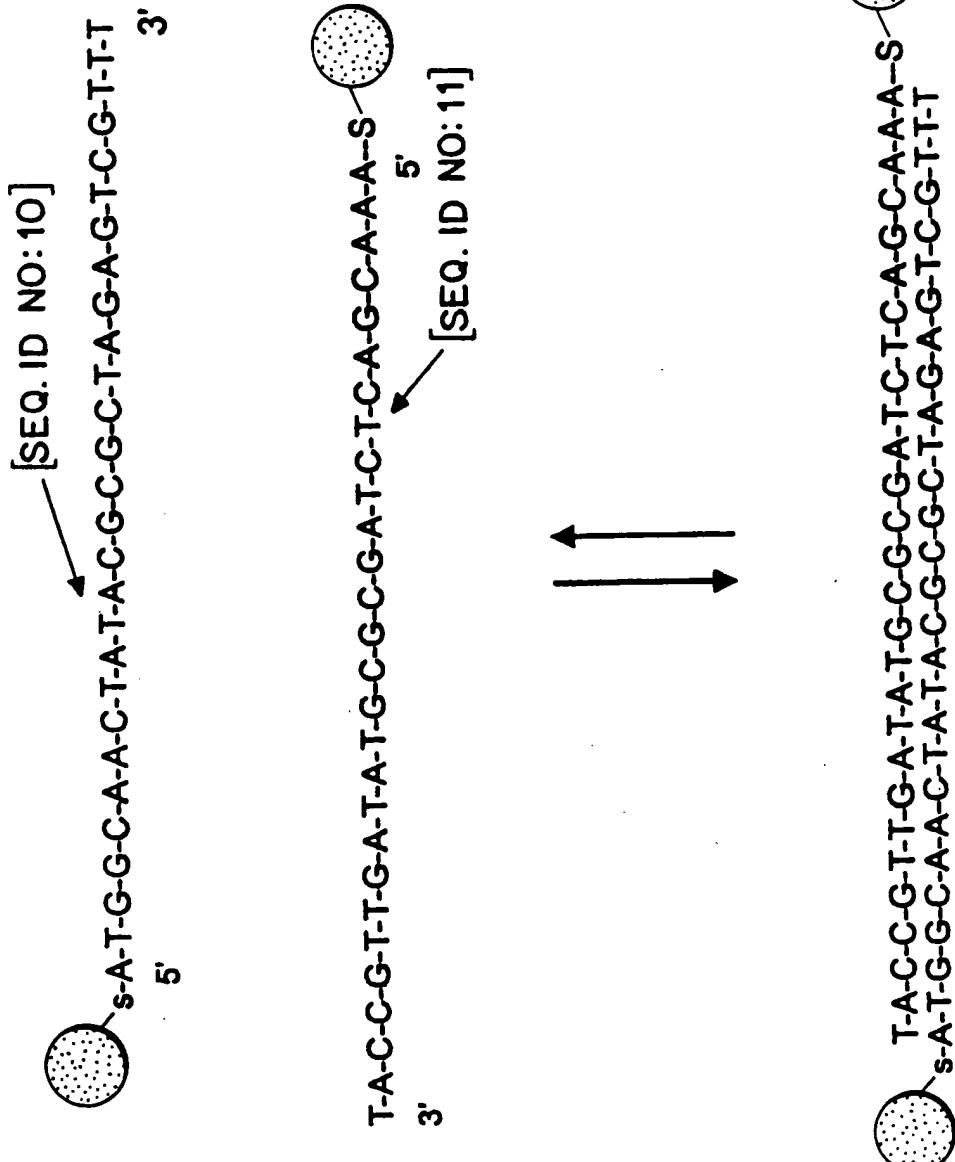


FIG. I2A

Complementary Target
[SEQ. ID NO:12] 1

3' T-C-G-T-A-C-C-A-G-C-T-A-T-C-C
5' A-G-C-A-T-G-G-T-C-G-A-T-A-G-G-A-A-A-C-G-A-C-T-C-T-A-G-C-G-C

3

[SEQ. ID NO:14]

2



[SEQ. ID NO:13]

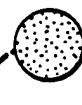
FIG. I2B

Probes without Target

1

3' T-C-G-T-A-C-C-A-G-C-T-A-T-C-C
5' A-G-C-A-T-G-G-T-C-G-A-T-A-G-G-A-T-G-G-C-A-A-C-T-A-T-A-C-G-C

2

**FIG. I2C**

Half Complementary Target

1

3' T-C-G-T-A-C-C-A-G-C-T-A-T-C-C
5' A-G-C-A-T-G-G-T-C-G-A-T-A-G-G-A-T-G-G-C-A-A-C-T-A-T-A-C-G-C

2



4

[SEQ. ID NO:15]

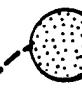
FIG. I2D

Target - 6 bp

1

3' T-C-G-T-A-C-C-A-G-C-T-A-T-C-C
5' G-T-C-G-A-T-A-G-G-A-A-A-C-G-A-C-T-C-T-A-G-C-G-C

2



5

[SEQ. ID NO:16]

FIG. I2E

One bp Mismatch

1

3' T-C-G-T-A-C-C-A-G-C-T-A-T-C-C
5' A-G-C-A-T-G-G-T-T-G-A-T-A-G-G-A-A-A-C-G-A-C-T-C-T-A-G-C-G-C

2



6

[SEQ. ID NO:17]

FIG. I2F

Two bp Mismatch

1

3' T-C-G-T-A-C-C-A-G-C-T-A-T-C-C
5' A-G-C-A-T-G-T-T-G-A-T-A-G-G-A-A-A-C-G-A-C-T-C-T-A-G-C-G-C

2



7

[SEQ. ID NO:18]

FIG. 13A

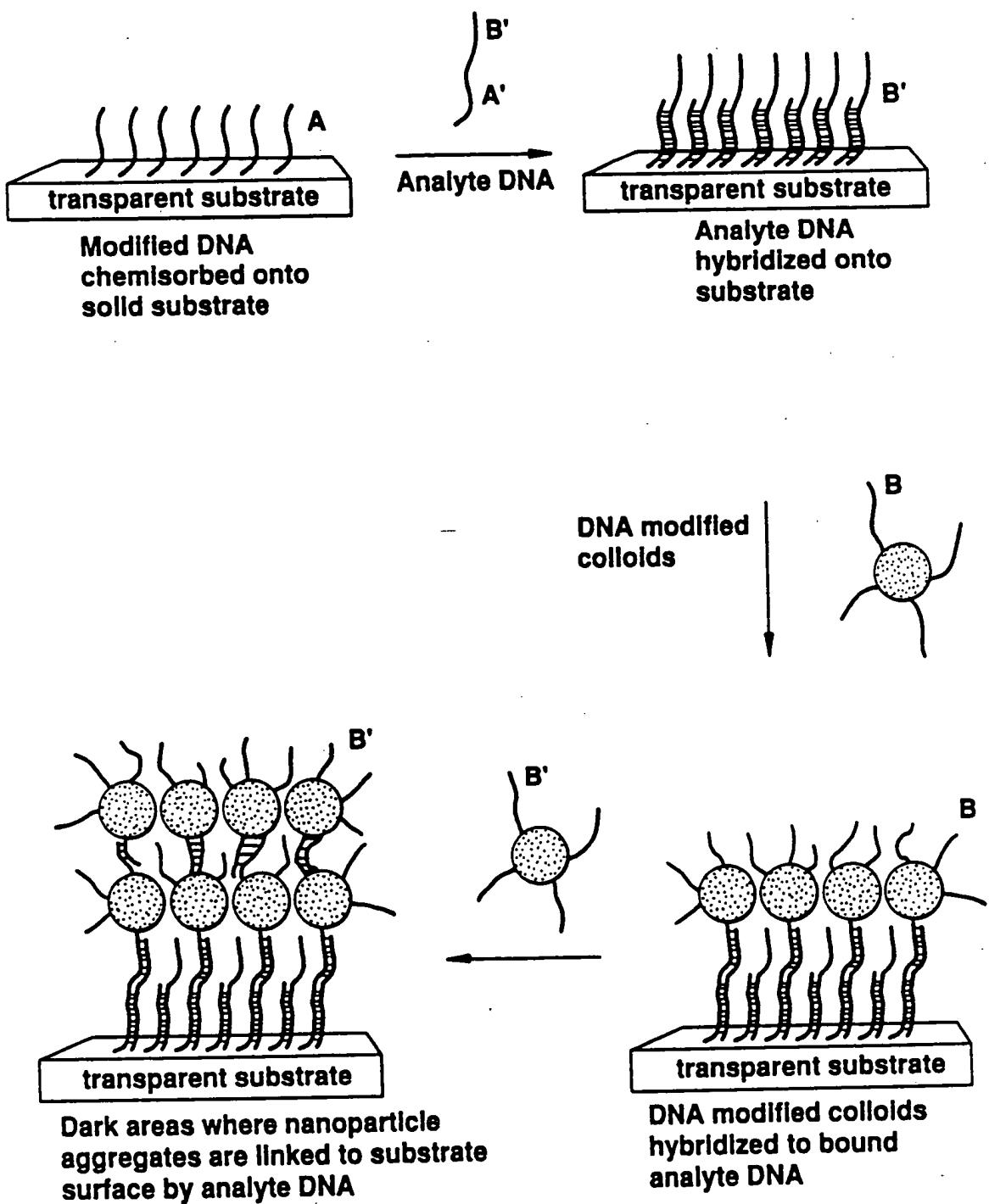


FIG. 13B

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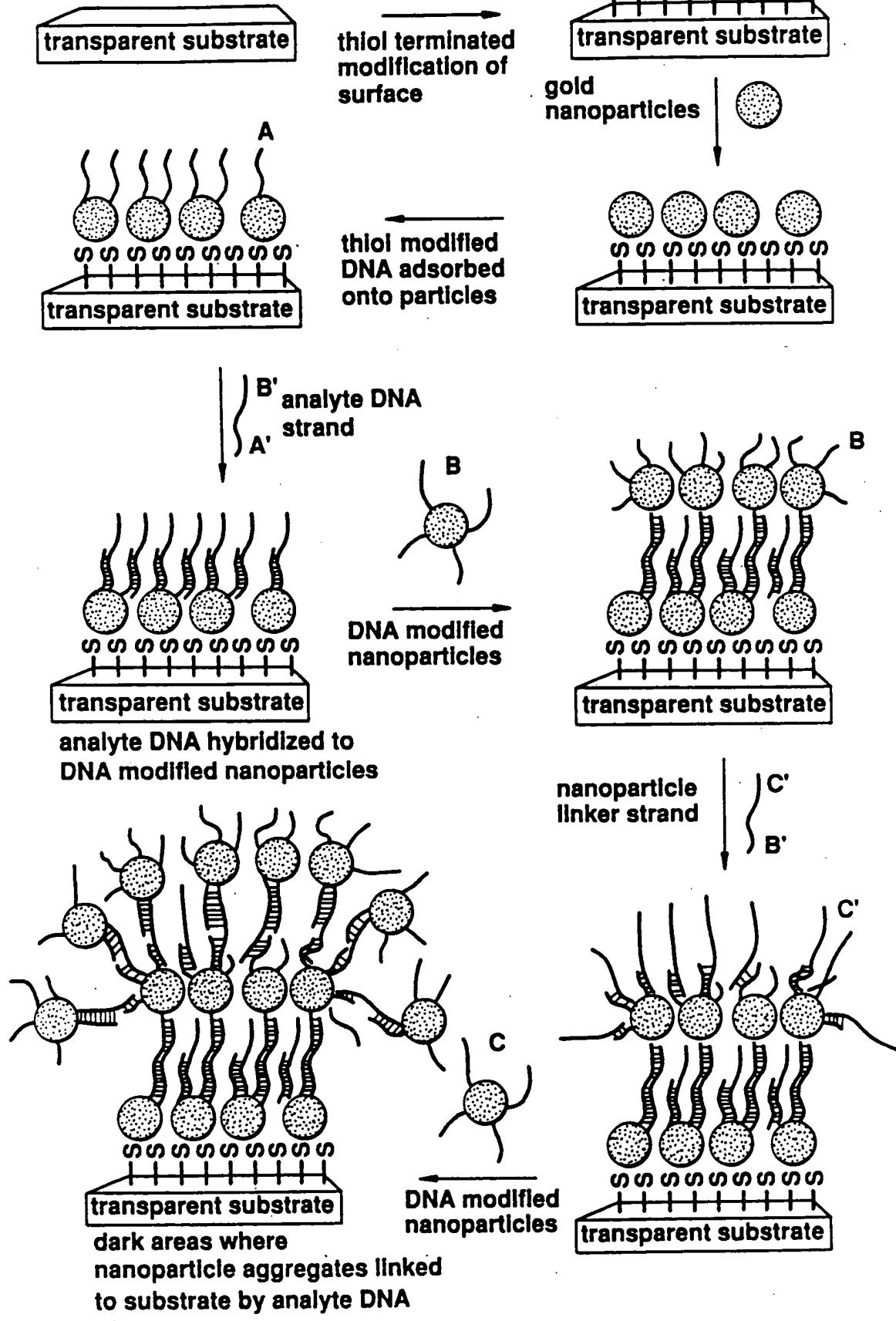


FIG. I4A

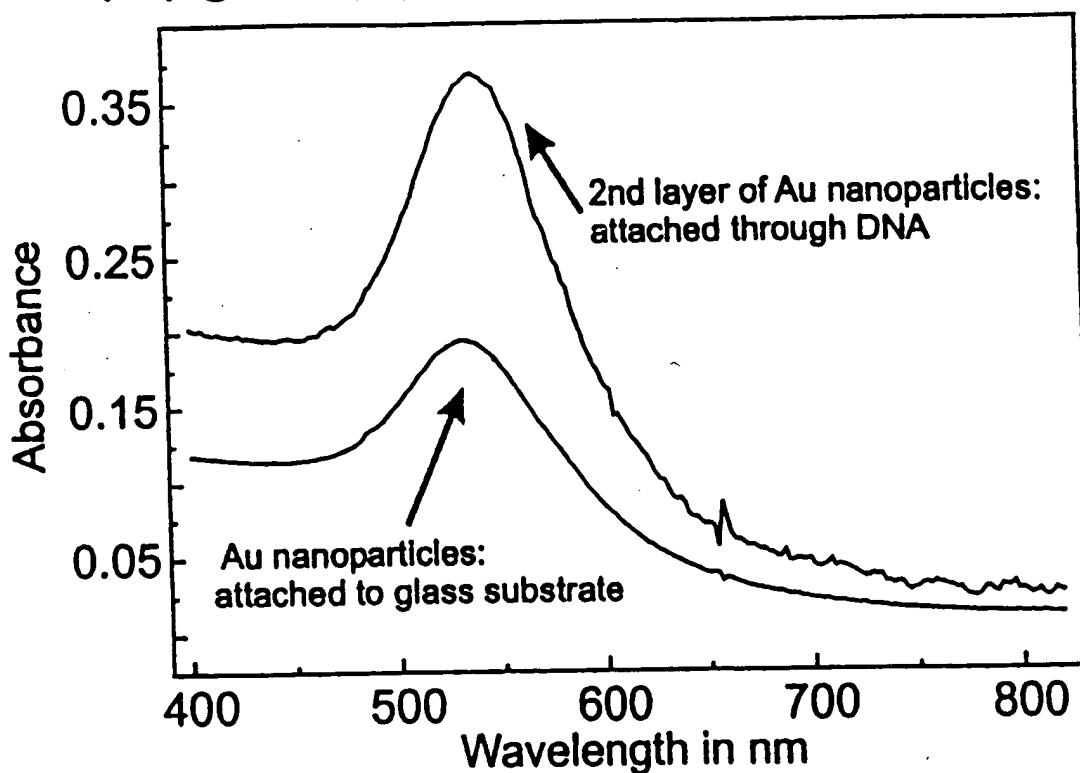


FIG. I4B

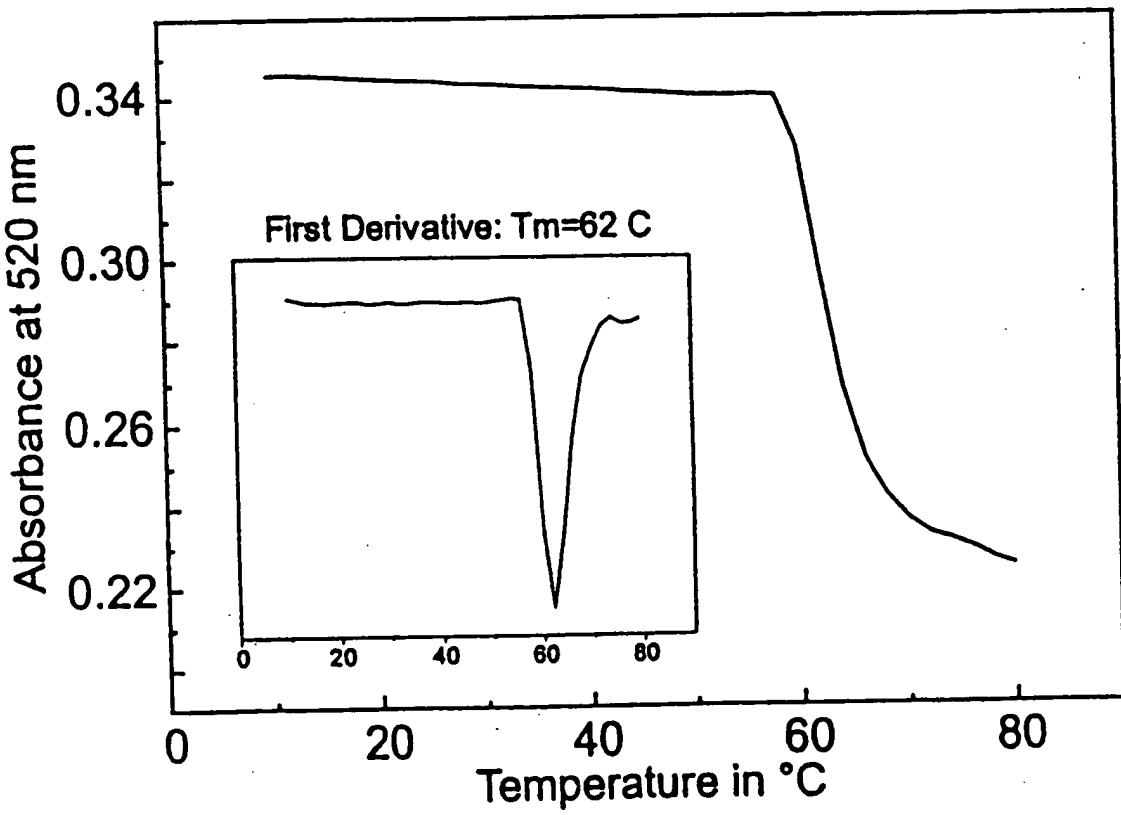


FIG. 15A

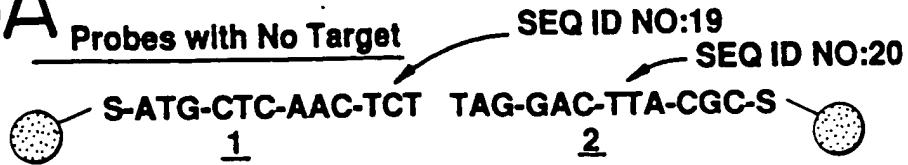


FIG. 15B

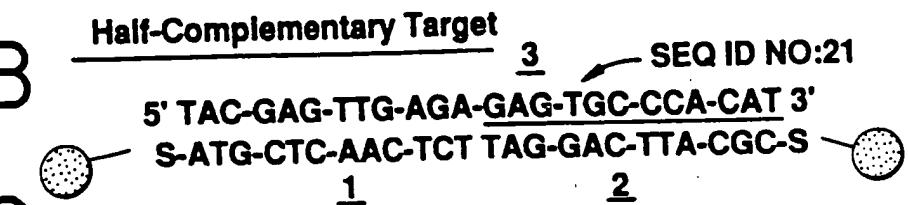


FIG. 15C

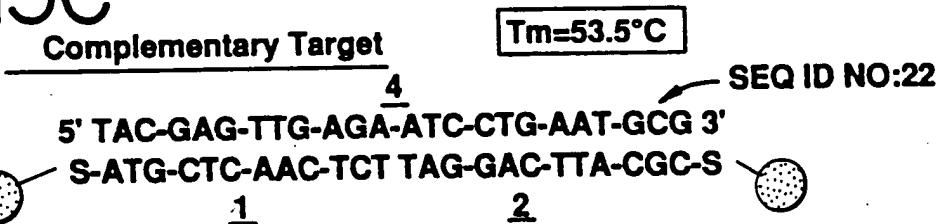


FIG. 15D

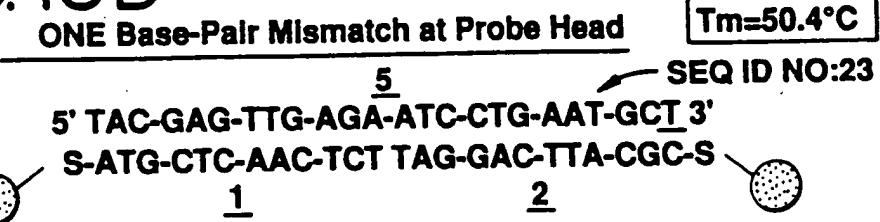


FIG. 15E

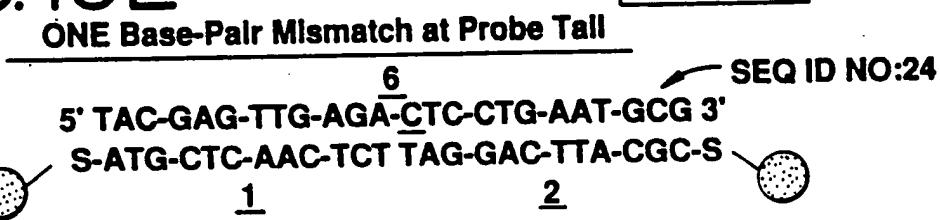


FIG. 15F

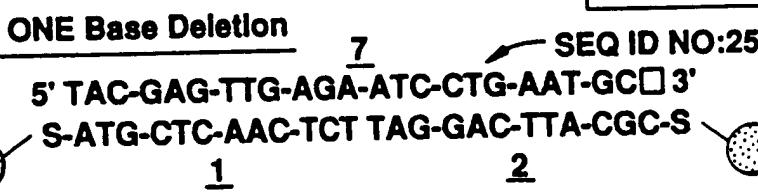


FIG. 15G

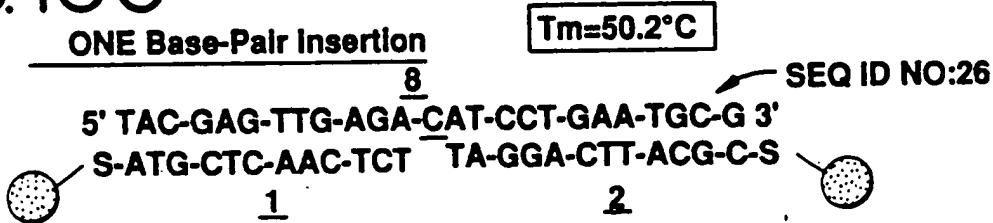


FIG. 16A

24 Base Template

5' TAC-GAG-TTG-AGA-ATC-CTG-AAT-GCG 3'
—S-ATG-CTC-AAC-TCT TAG-GAC-TTA-CGC-S —
1
2

FIG. 16B

48 Base Template with Complementary 24 Base Filler

5' TAC-GAG-TTG-AGA-CCG-TTA-AGA-CGA-GGC-AAT-CAT-GCA-ATC-CTG-AAT-GCG 3'
—S-ATG-CTC-AAC-TCT GGC-AAT-TCT-GCT-CCG-TTA-GTA-CGT TAG-GAC-TTA-CGC-S —
1
2

FIG. 16C

72 Base Template with Complementary 48 Base Filler

5' TAC-GAG-TTG-AGA-CCG-TTA-AGA-CGA-GGC-AAT-CAT-GCA-TAT-GGA-CGC-TTT-ACG-GAC-AAC-ATC-CTG-AAT-GCG 3'
—S-ATG-CTC-AAC-TCT GGC-AAT-TCT-GCT-CCG-TTA-GTA-CGT-ATA-TAA-CCT-GCG-CTG-TTG TAG-GAC-TTA-CGC-S —
1
2

FIG. 17A

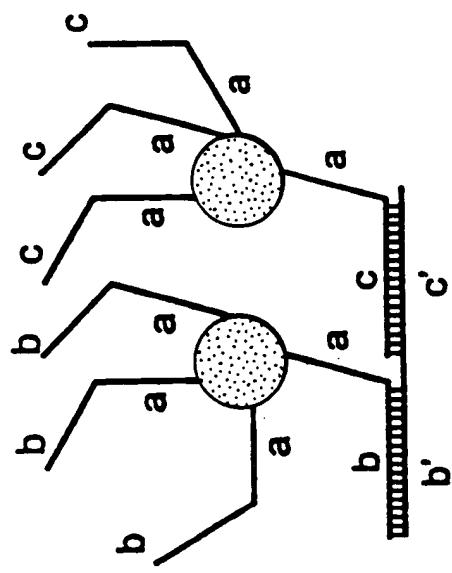


FIG. 17B

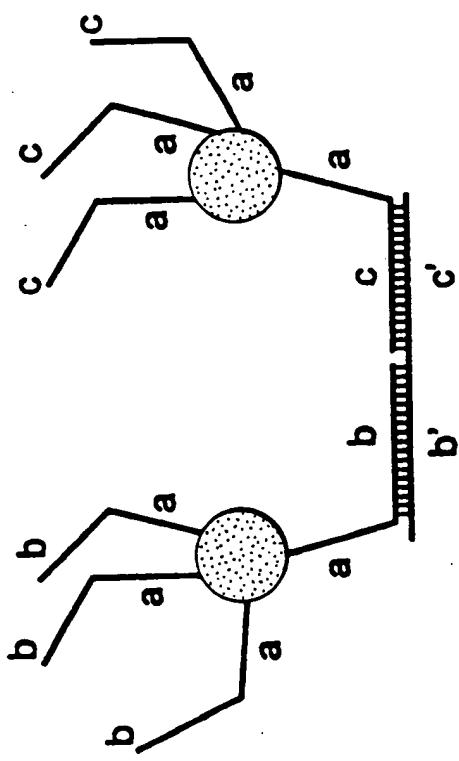


FIG. 17C

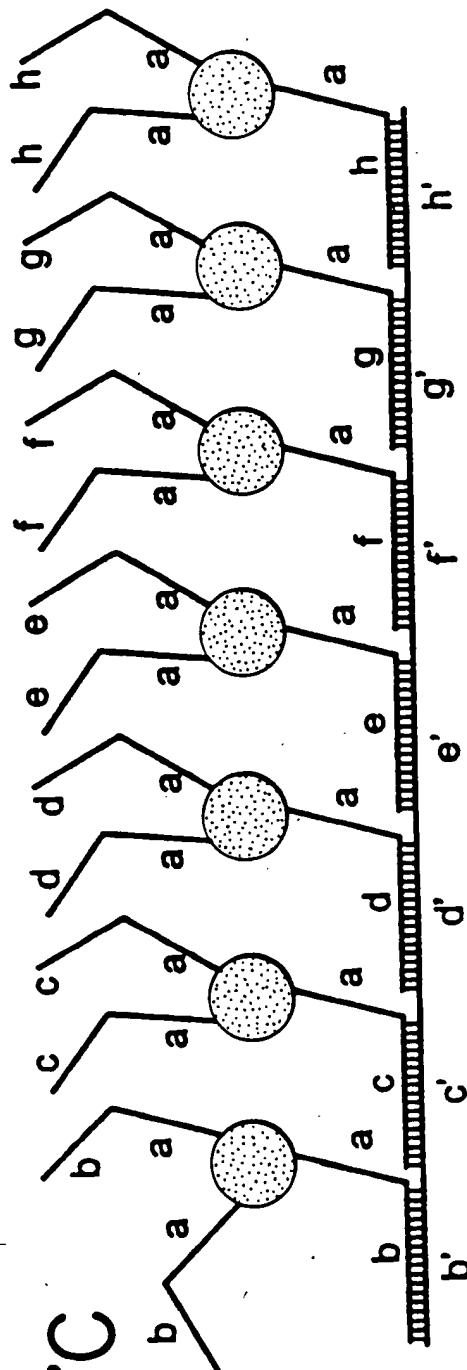


FIG. 17D

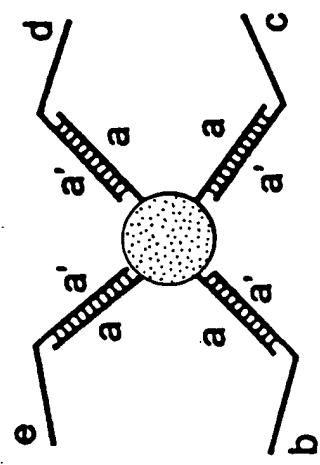
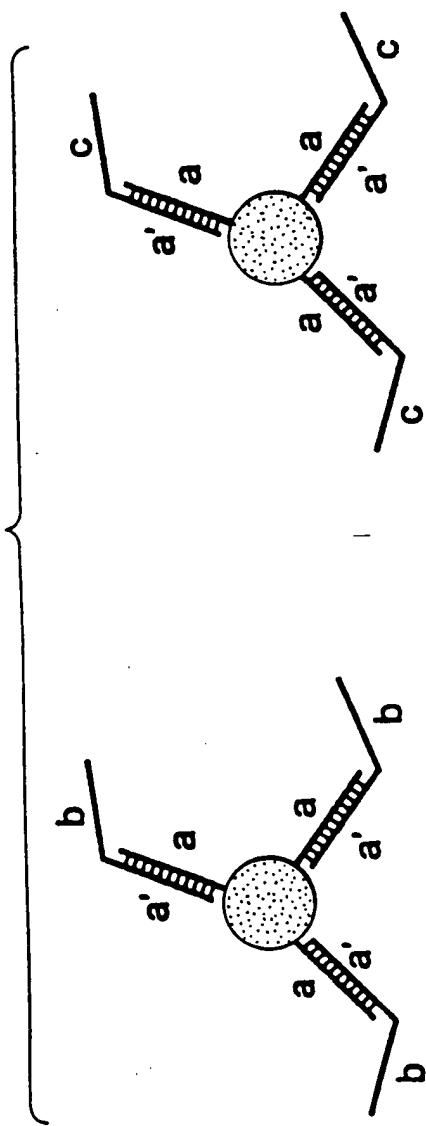


FIG. 17E

FIG. 18

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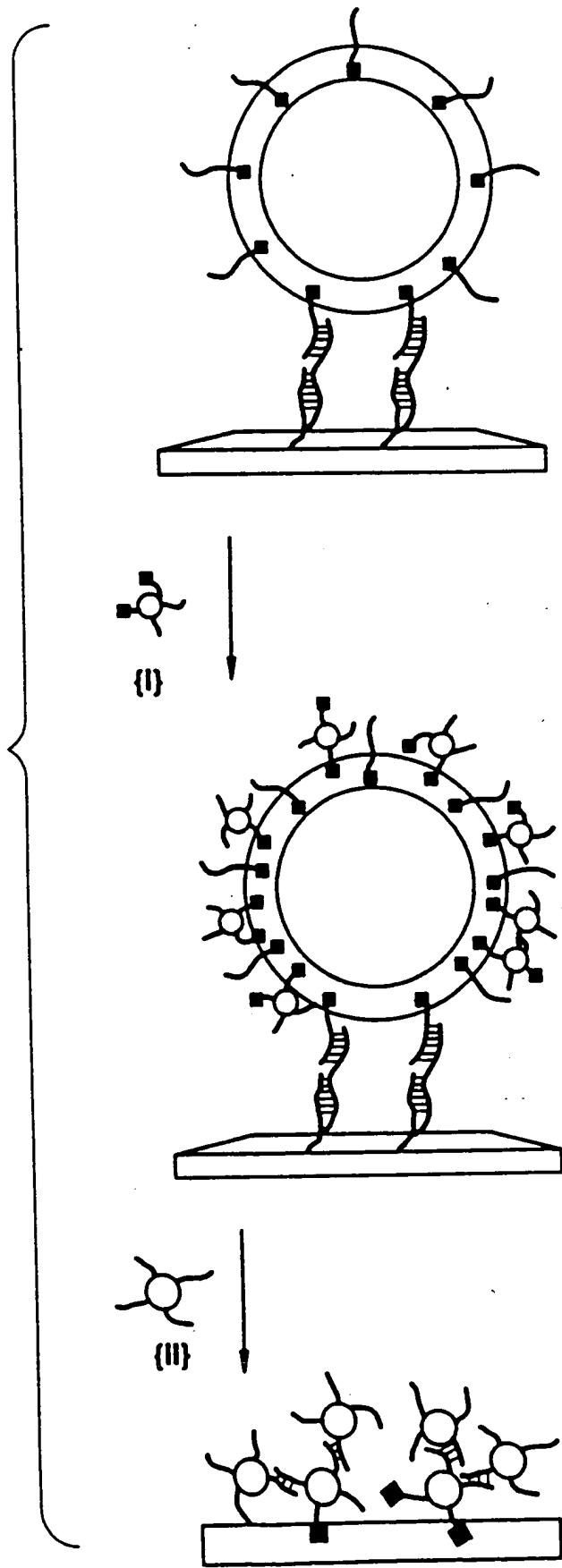


FIG. 19A

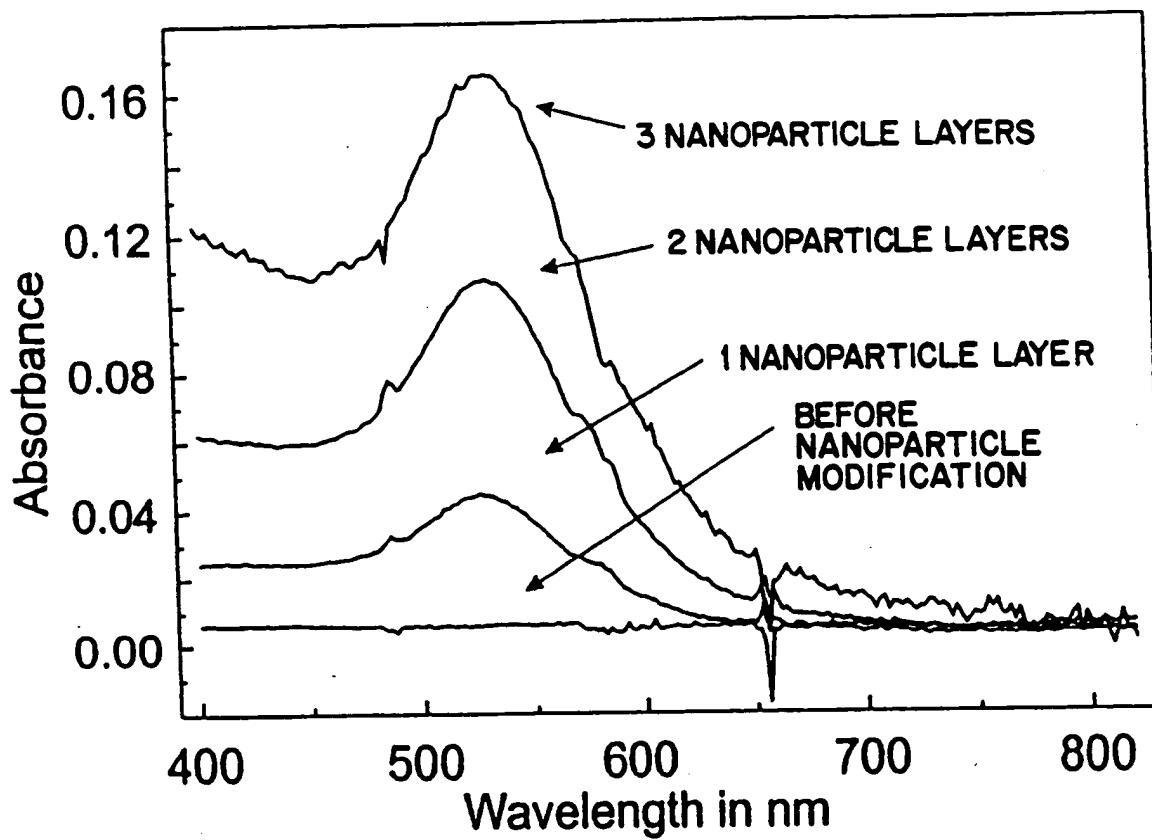


FIG. 19B

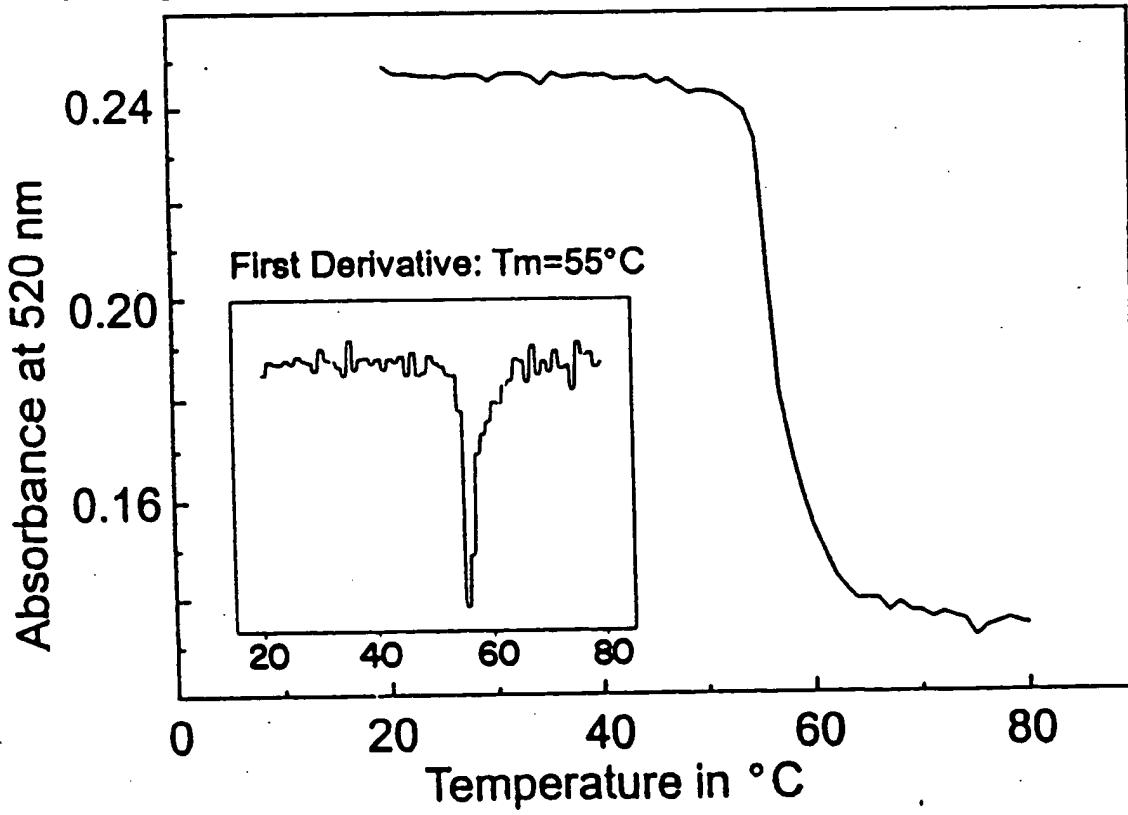


FIG. 20A

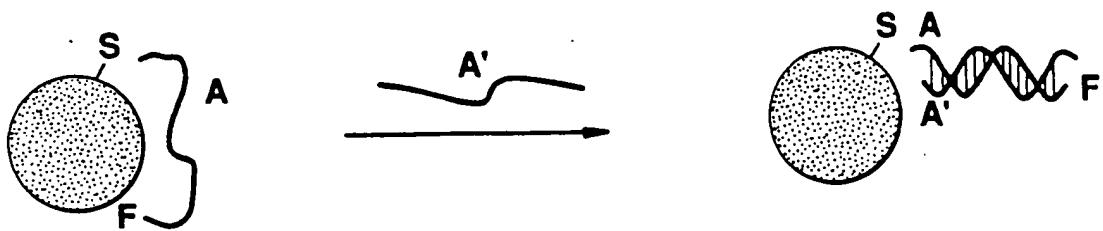


FIG. 20B

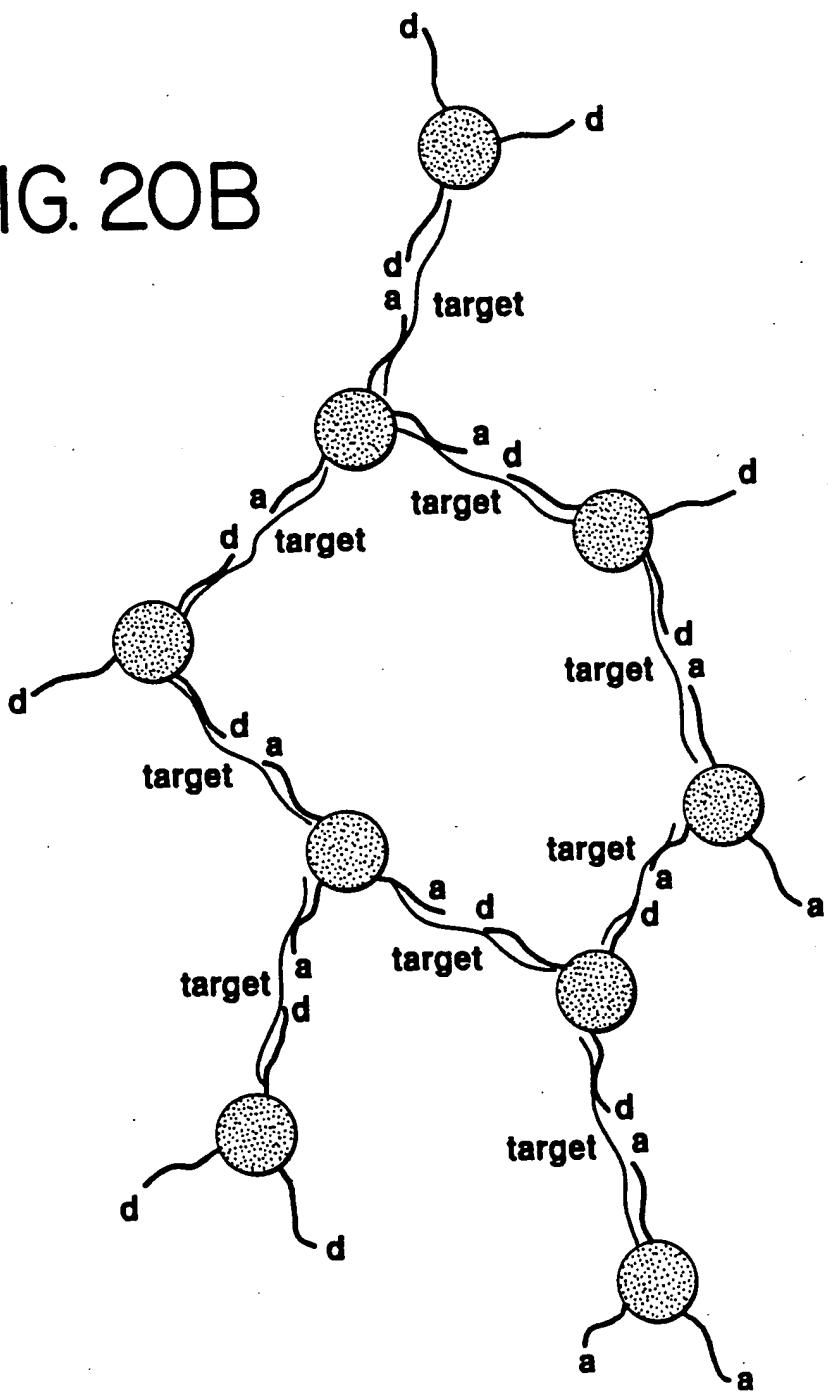


FIG. 21

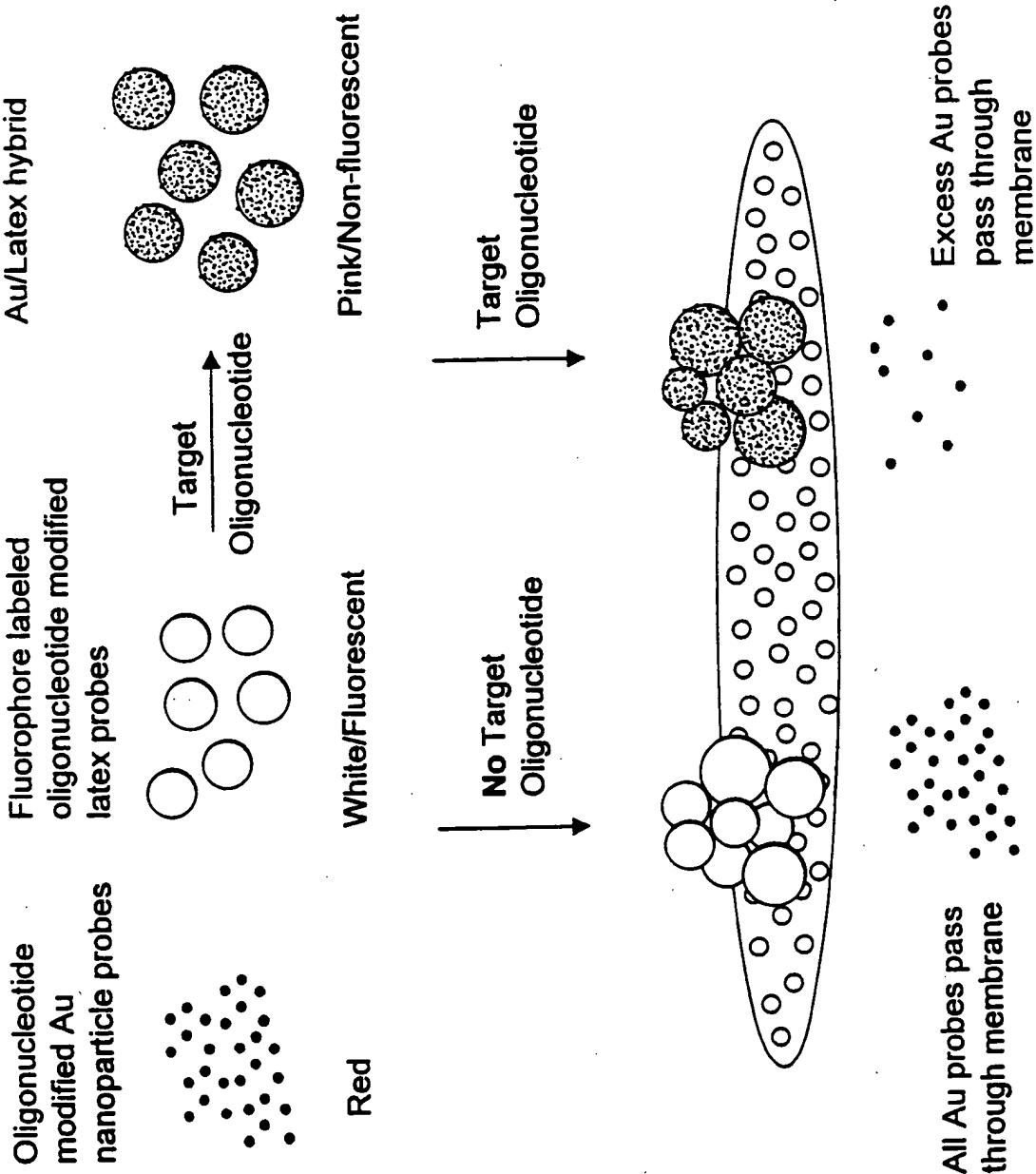


FIG. 22

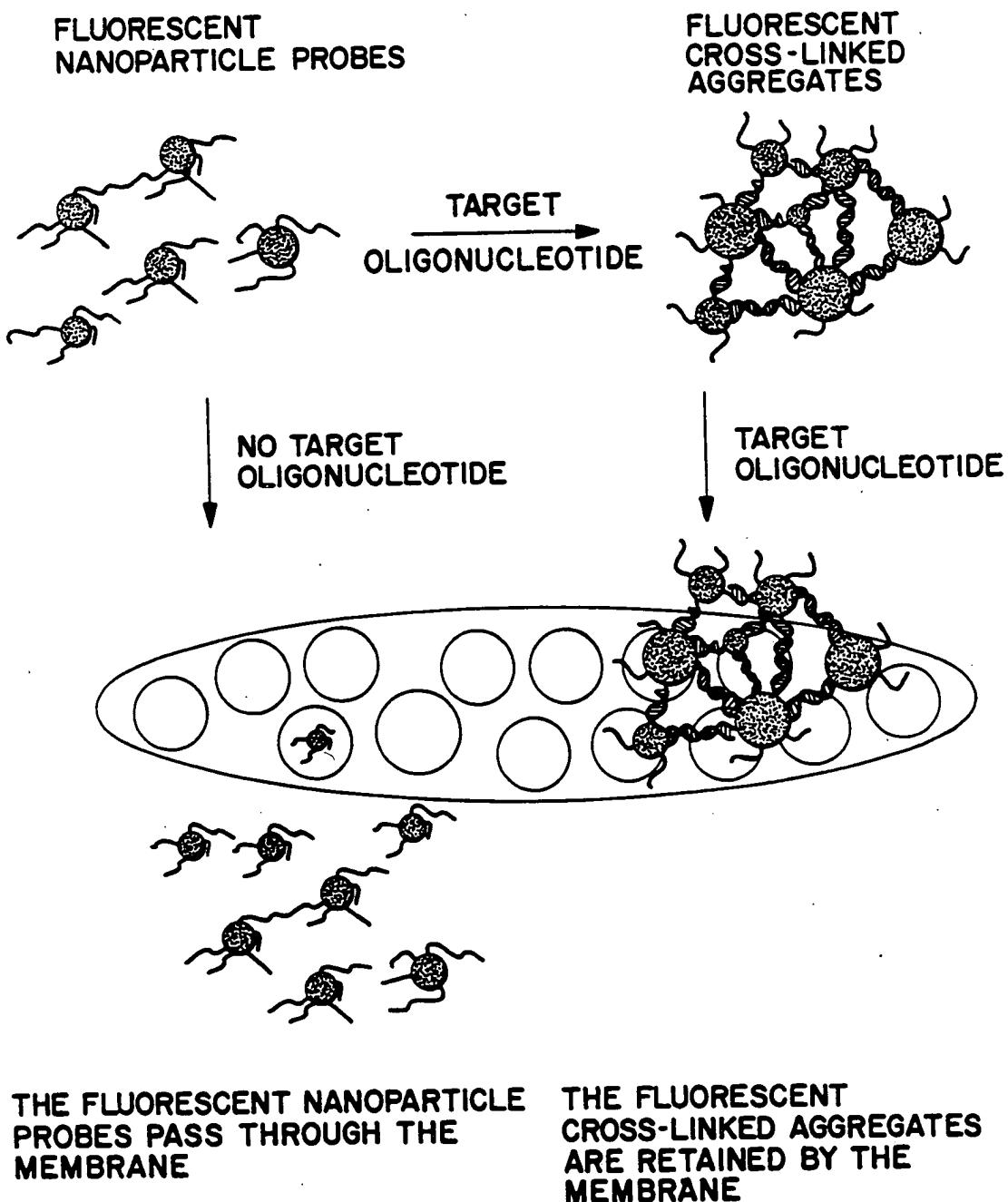


FIG. 23

Anthrax PCR Product

5'G GCG GAT GAG TCA GTA GTT AAG GAG GCT CAT AGA GAA GTA ATT AAT
3'CGC CTA CTC AGT CAT CAA TTC CTC CGA GTA TCT CTT CAT TAA TTA

TCG TCA ACA GAG GGA TTA TTG TTA AAT ATT GAT AAG GAT ATA AGA AAA
AGC AGT TGT CTC CCT AAT AAC AAT TTA TAA CTA TTC CTA TAT TCT TTT

ATA TTA TCC AGG GTT ATA TTG TAG AAA TTG AAG ATA CTG AAG GGC TT 3'
TAT AAT AGG TCC CAA TAT AAC ATC TTT AAC TTC TAT GAC TTC CCG AA 5'

141 mer Anthrax PCR product [SEQ ID NO:36]

3' CTC CCT AAT AAC AAT

[SEQ ID NO:37]

3' TTA TAA CTA TTC CTA

[SEQ ID NO:38]

Oligonucleotide-Nanoparticle Probes

Blocker Oligonucleotides

3' C CGC CTA CTC AGT CAT CAA TTC CTC CGA GT
3' A TCT CTT CAT TAA TTA AGC AGT TGT
3' TAT TCT TTT TAT AAT AGG TCC CAA TAT
3' AAC ATC TTT AAC TTC TAT GAC TTC CCG AA

[SEQ ID NO:39]

[SEQ ID NO:40]

[SEQ ID NO:41]

[SEQ ID NO:42]

FIG. 24

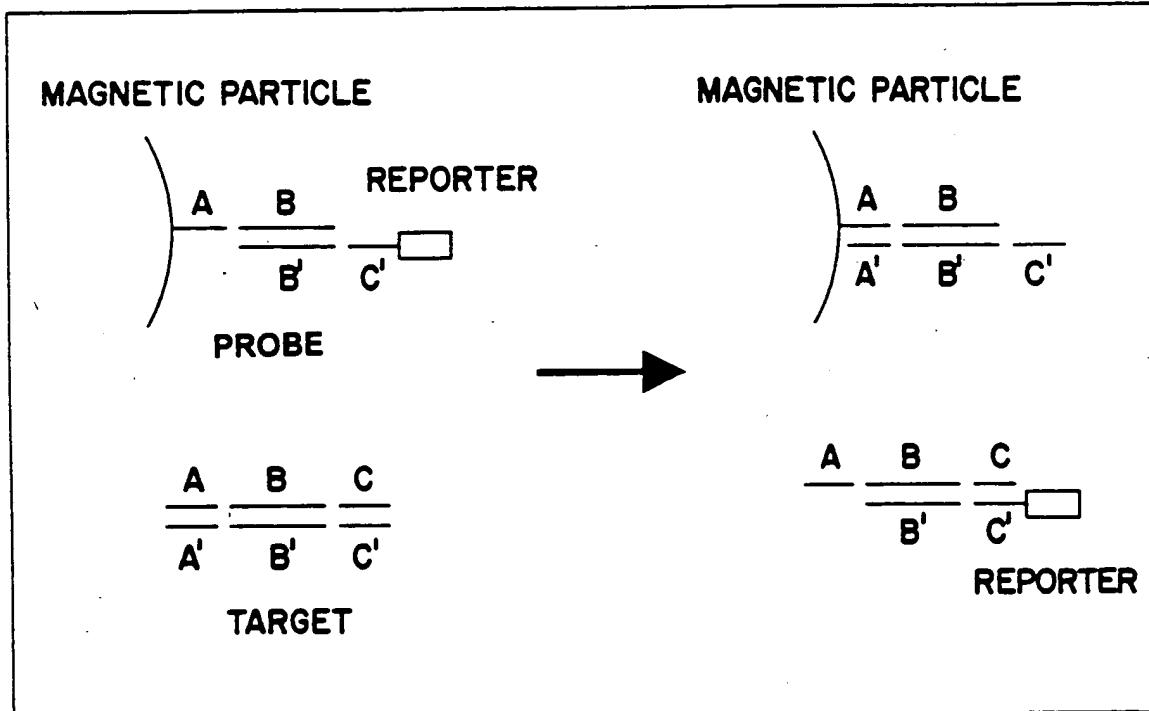
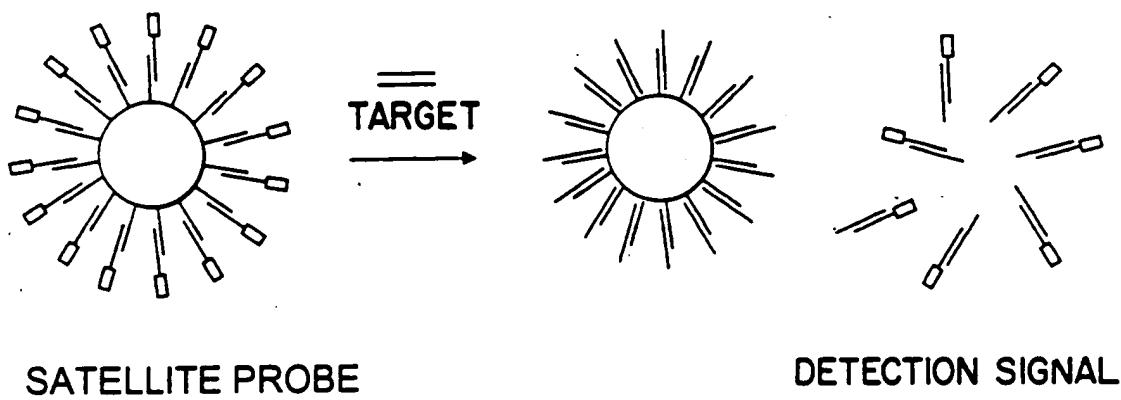


FIG. 25A

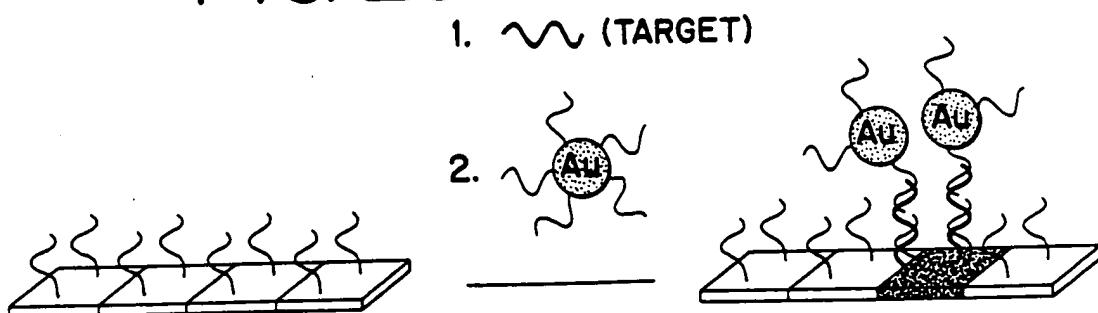


FIG. 25B

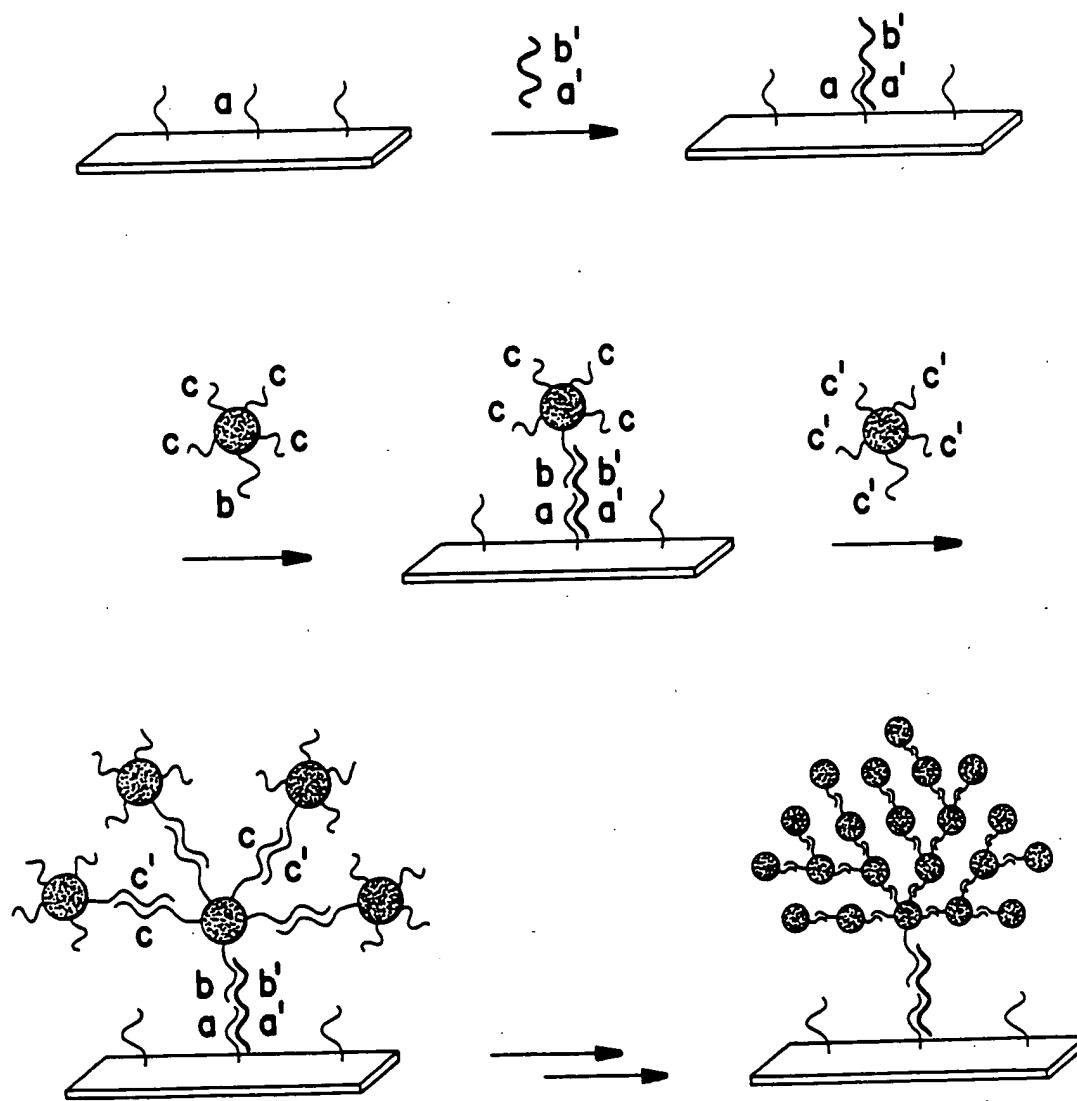


FIG. 26A

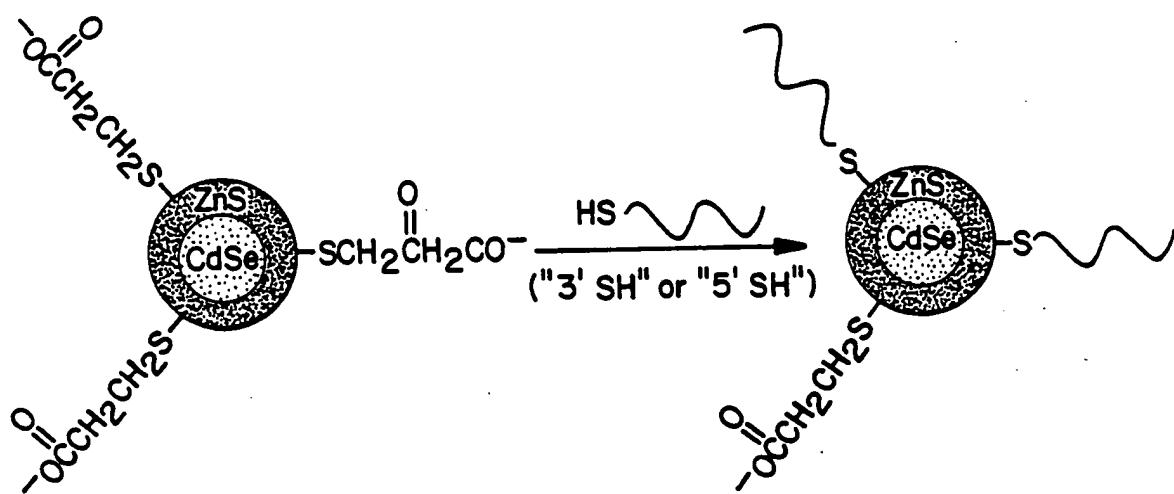


FIG. 26B

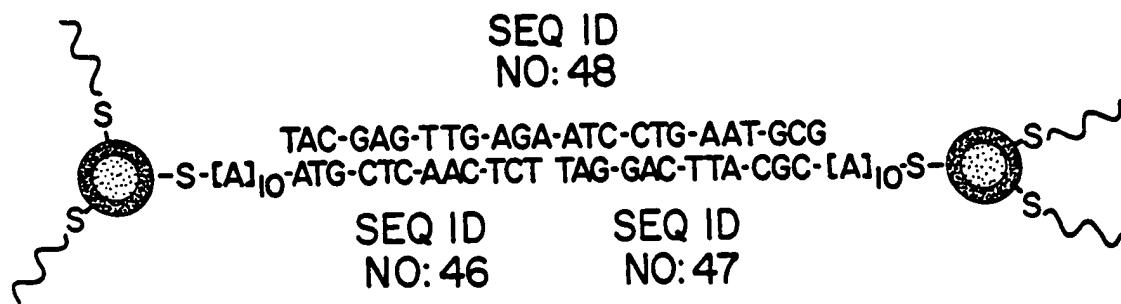


FIG. 27A

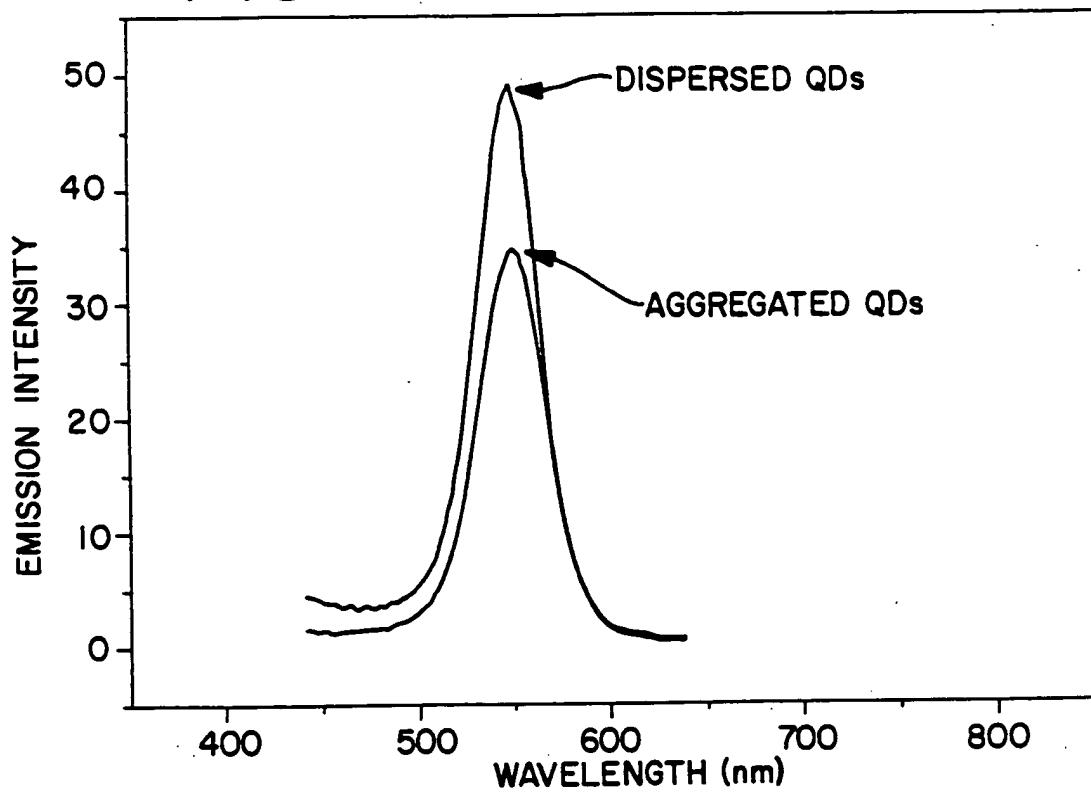
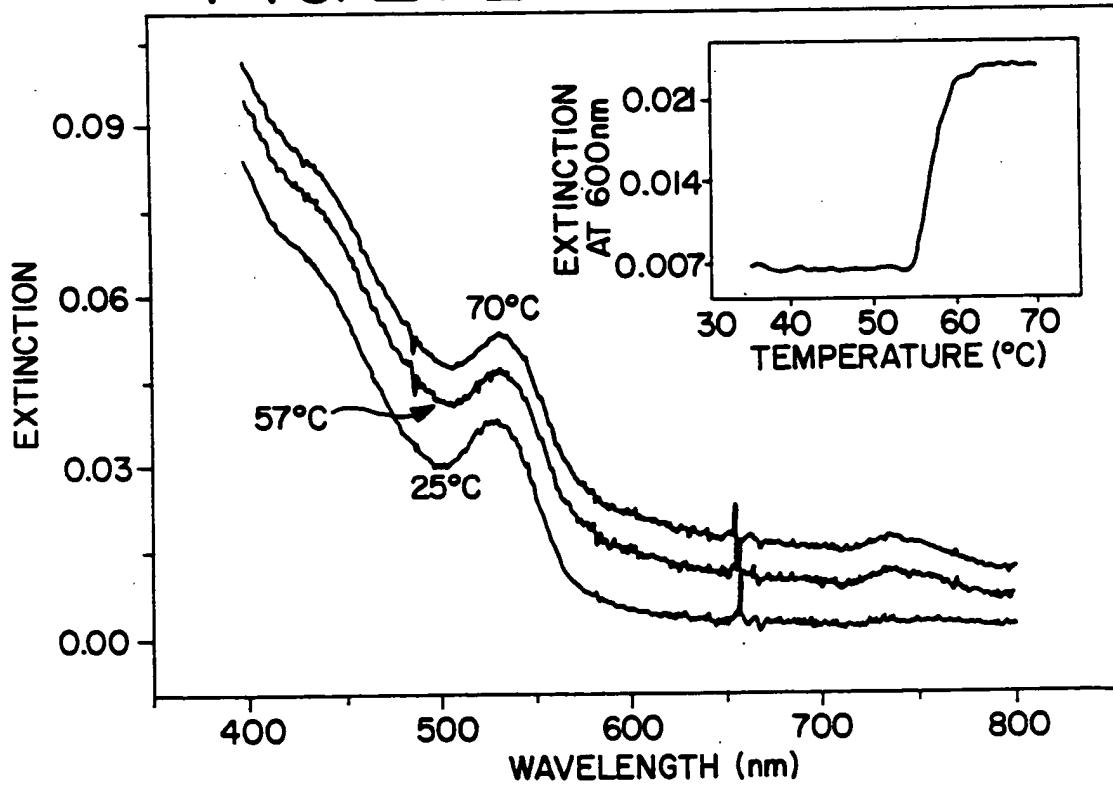


FIG. 27B



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FIG. 27C

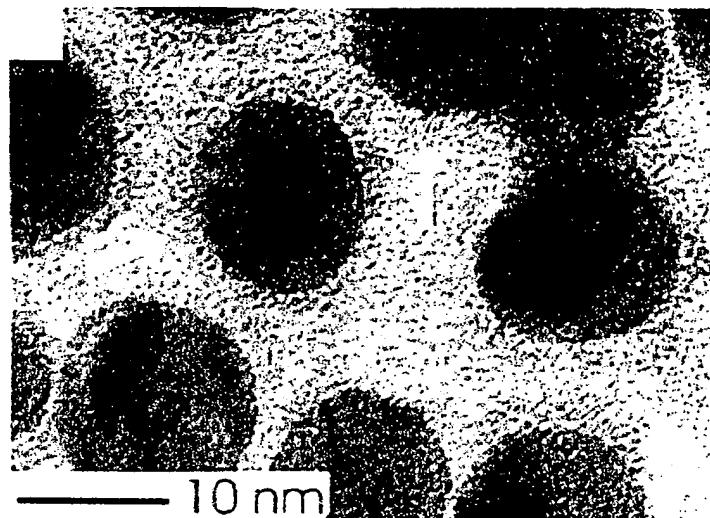


FIG. 27D

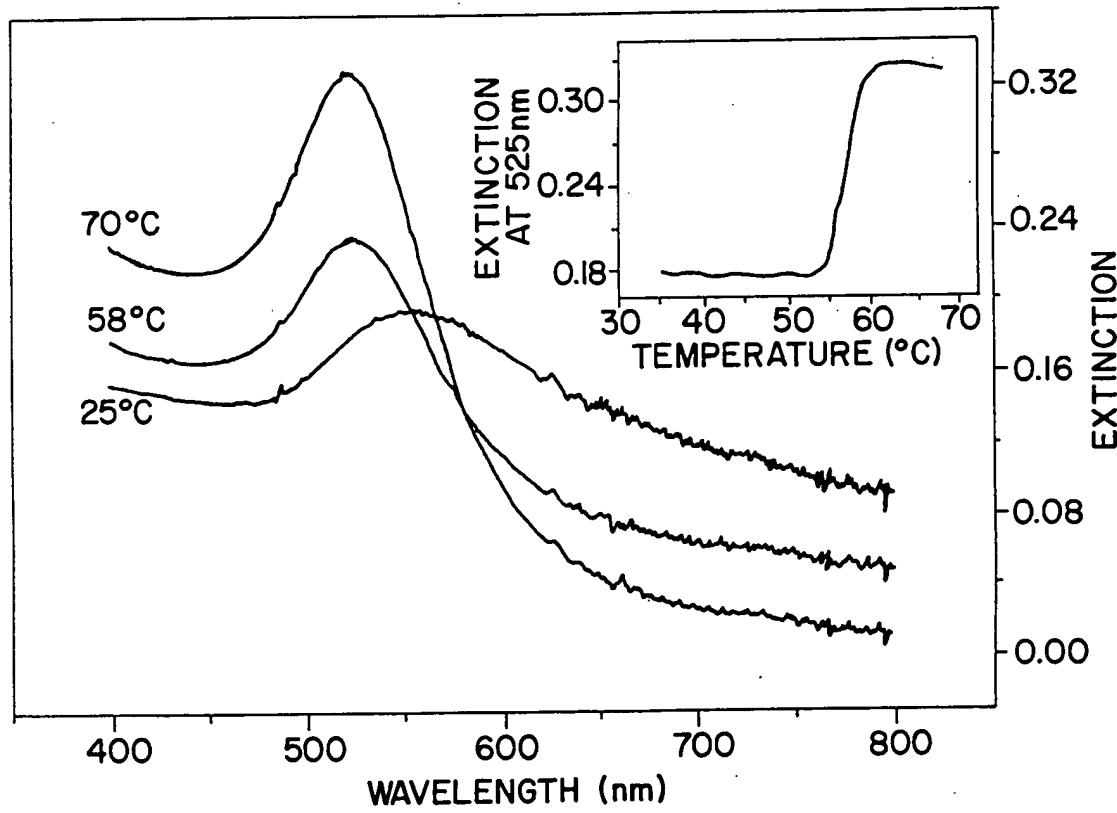


FIG. 28A

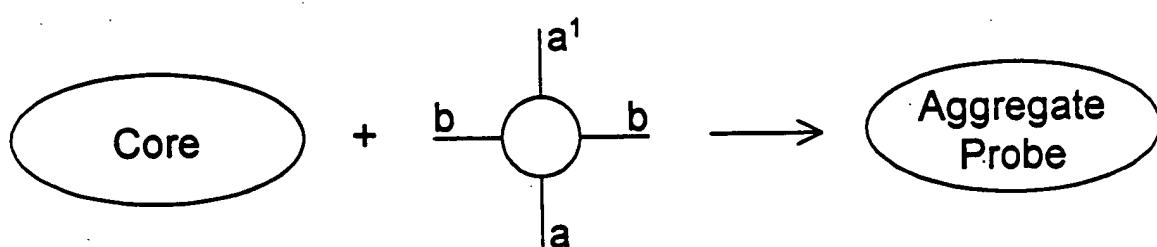
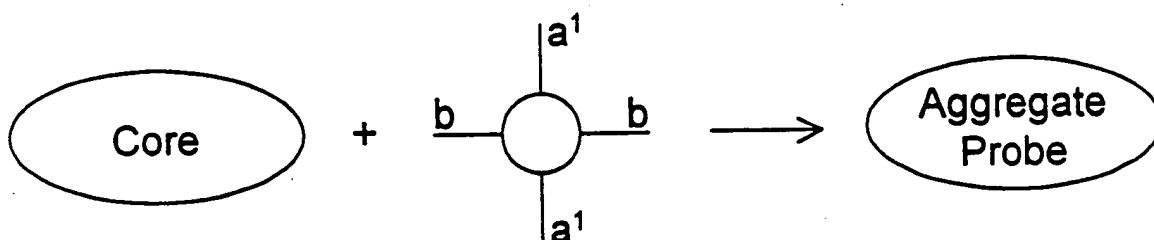
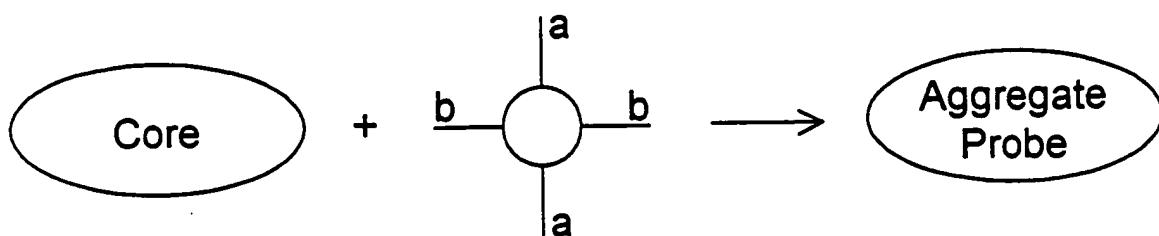
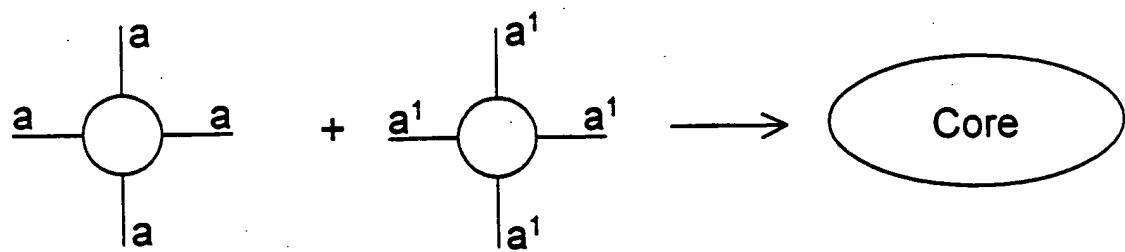


FIG. 28B

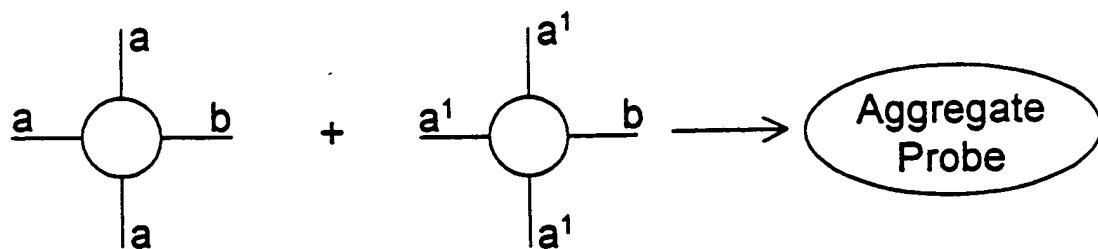


FIG. 28C

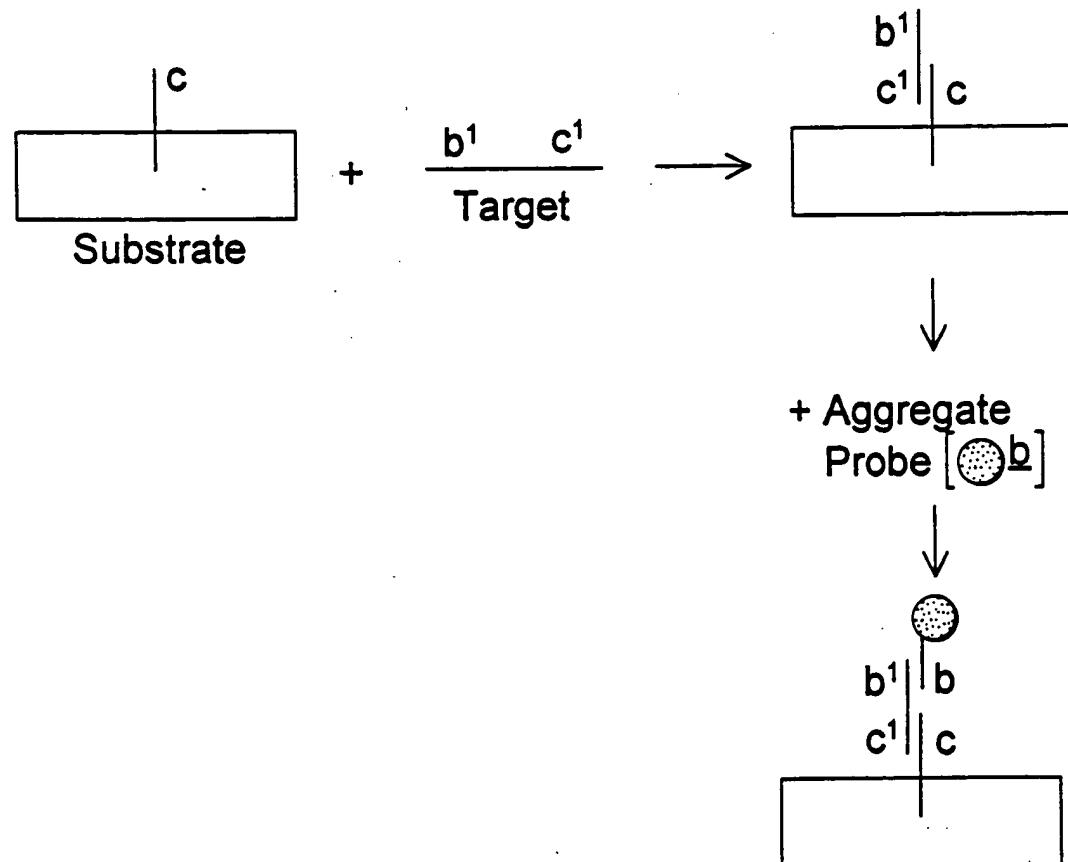


FIG. 28D

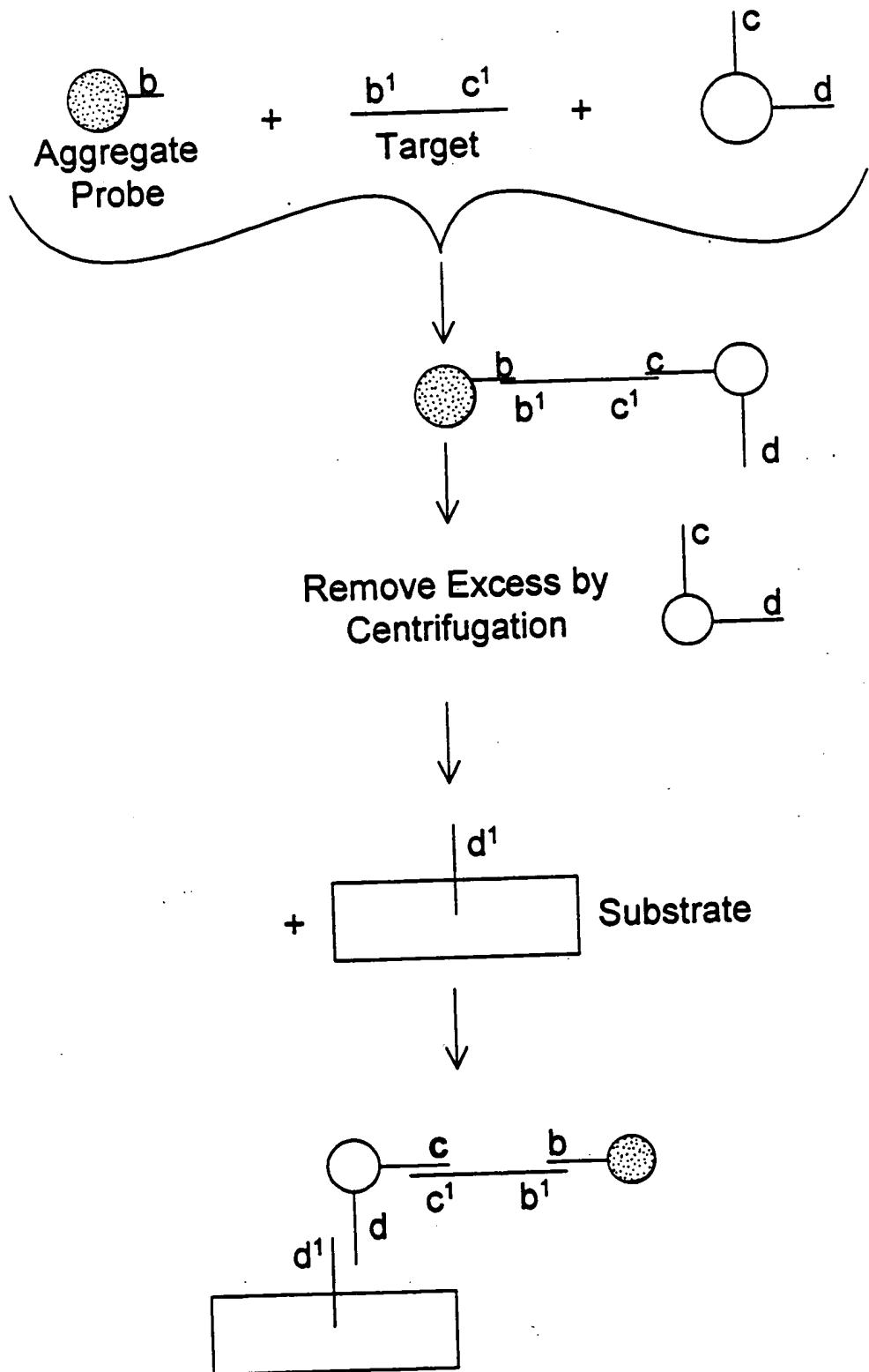
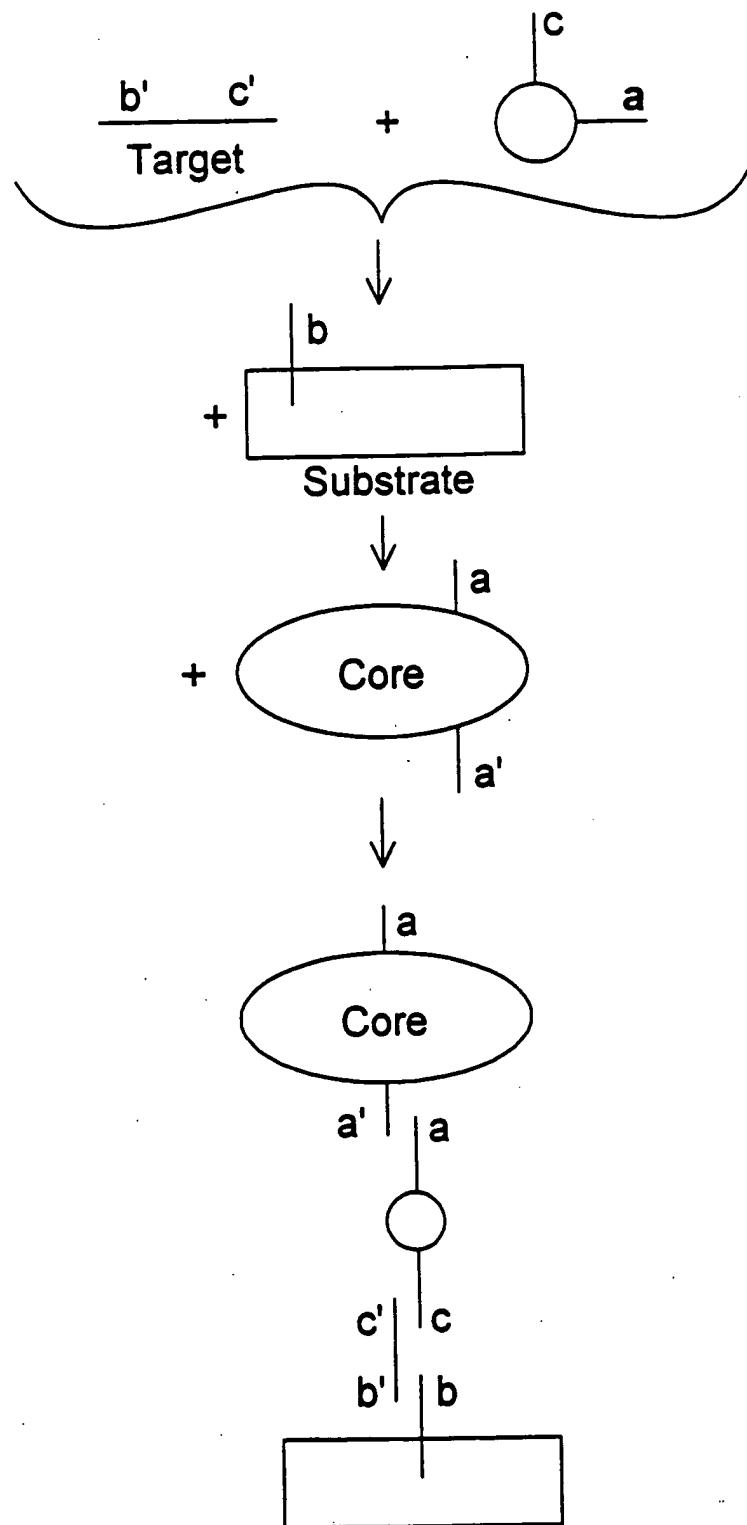
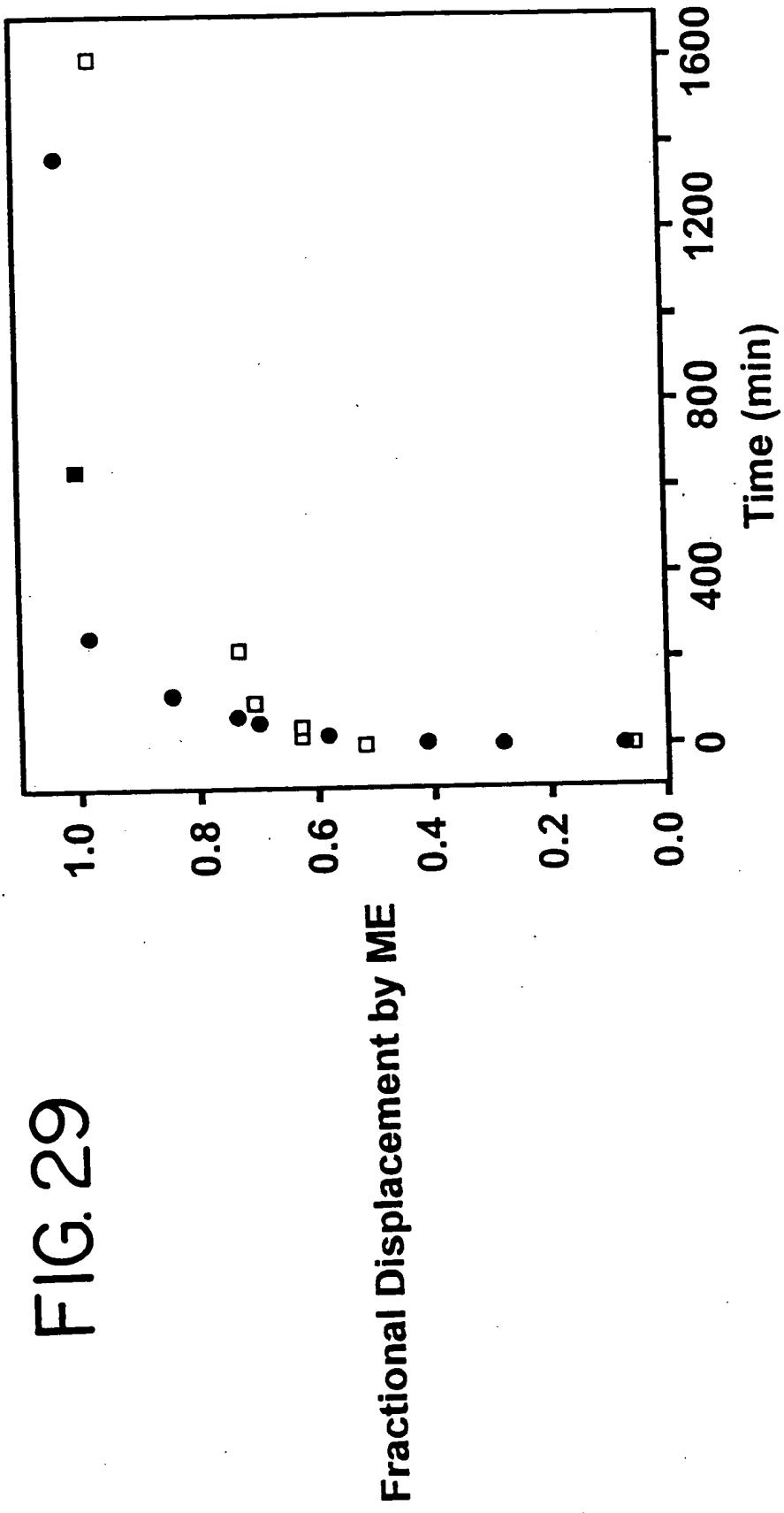


FIG. 28E





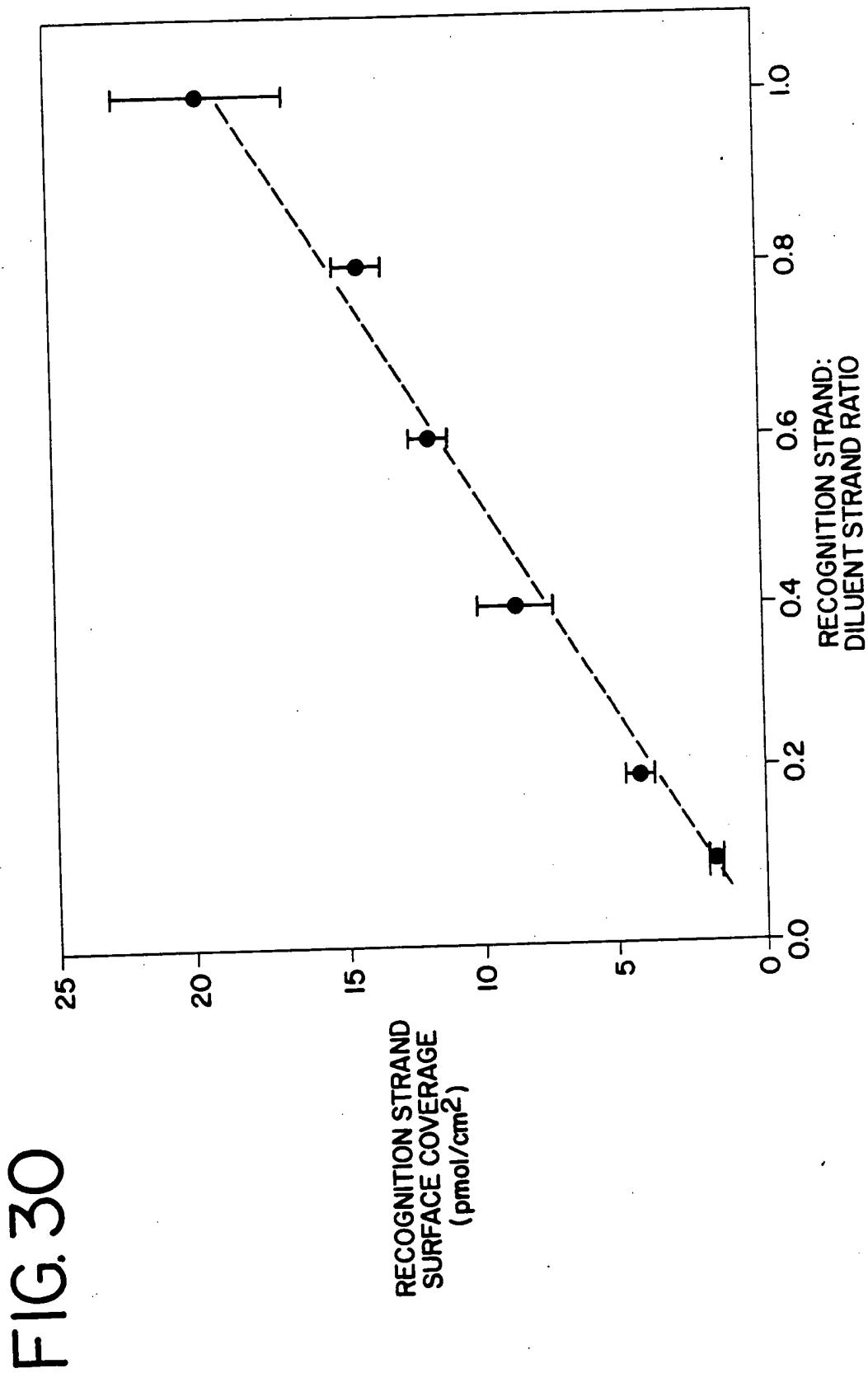


FIG. 3|

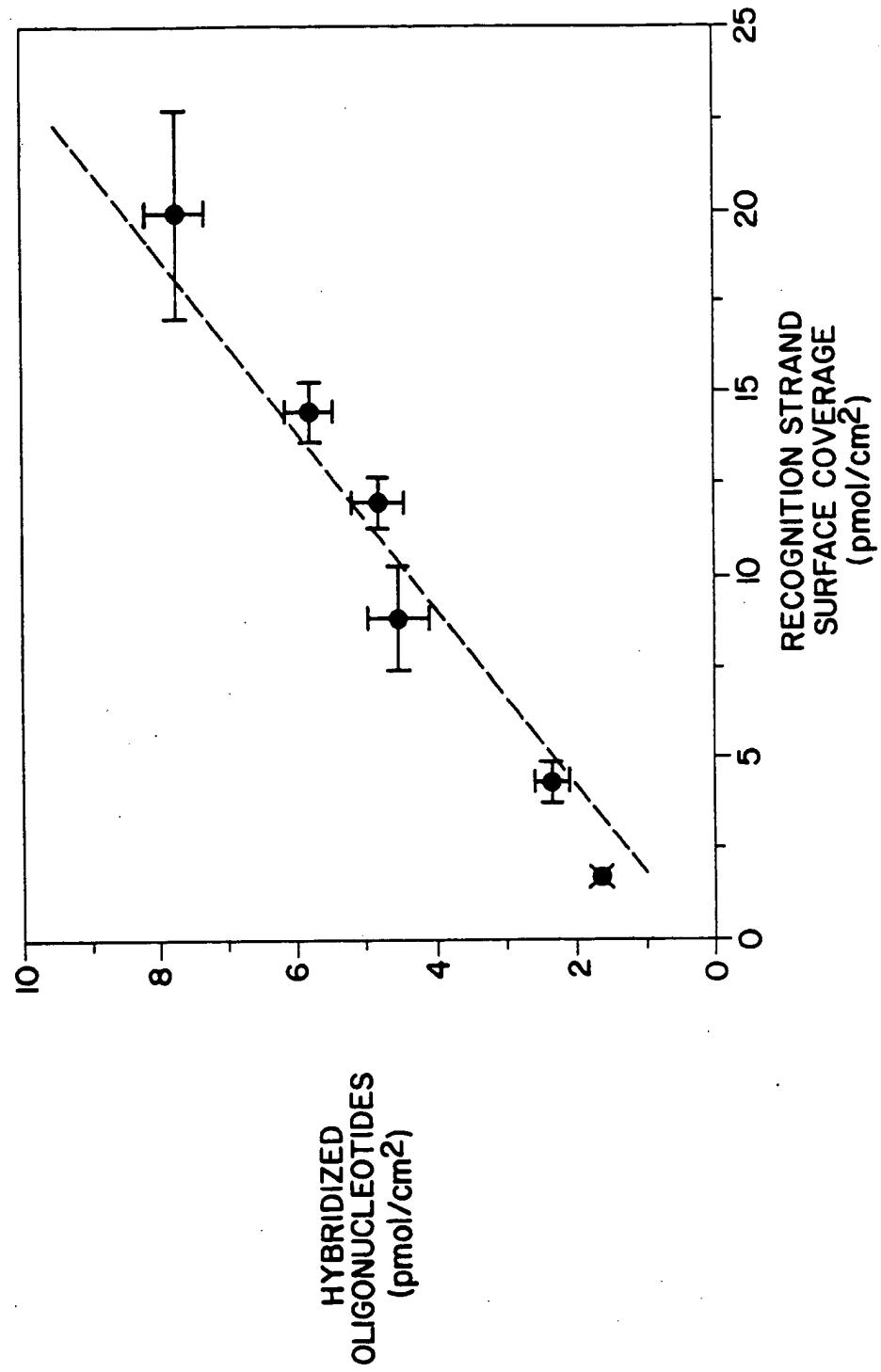
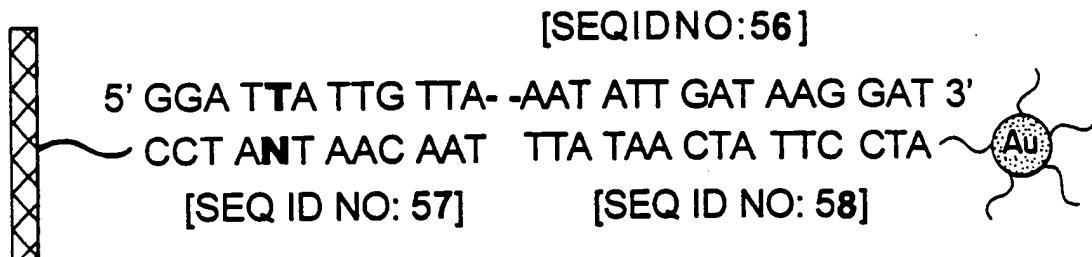
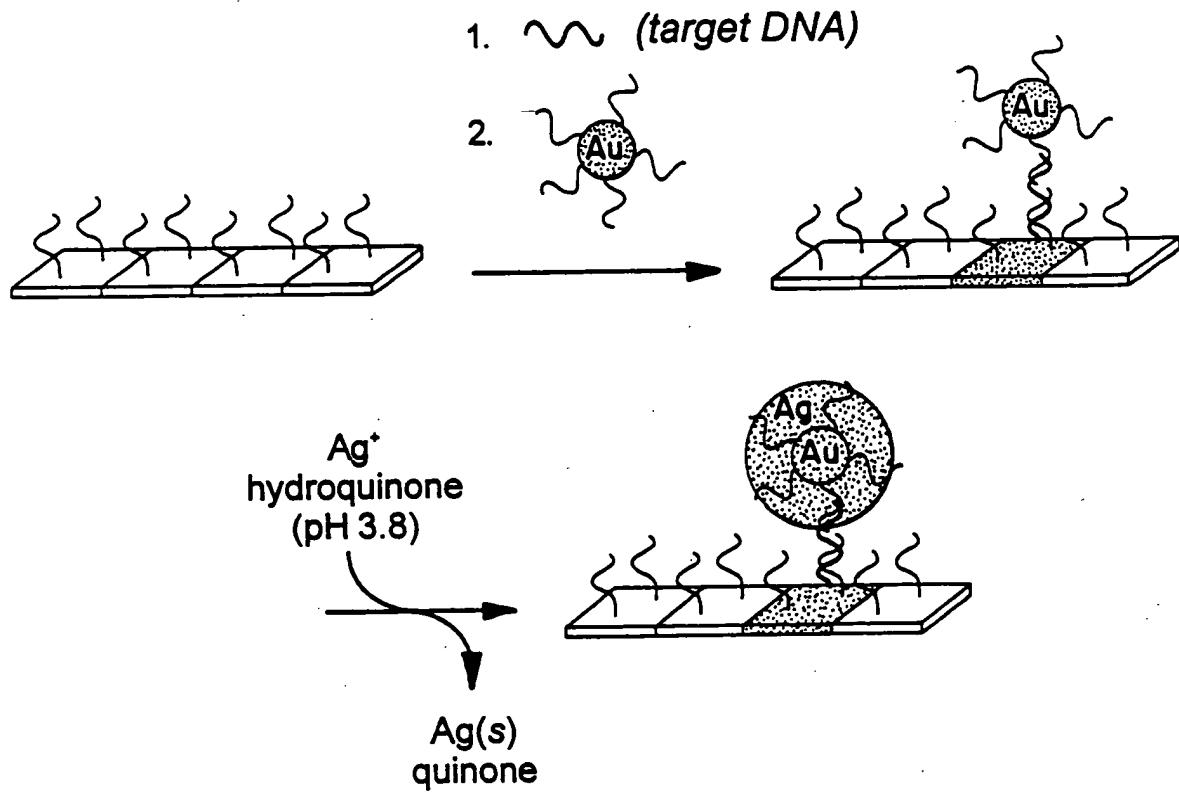


FIG. 32

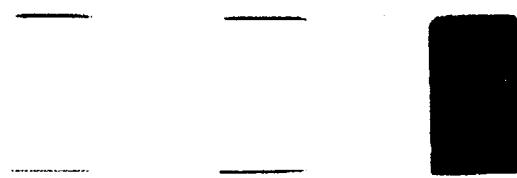


N = A (complementary),
G,C,T (mismatched)



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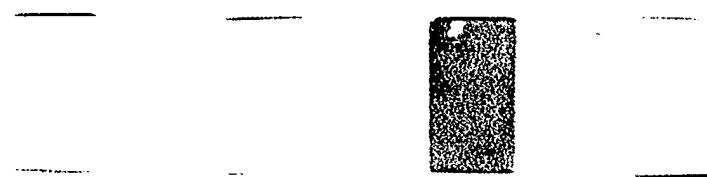
FIG. 33



A

B

C



D

E

F

G

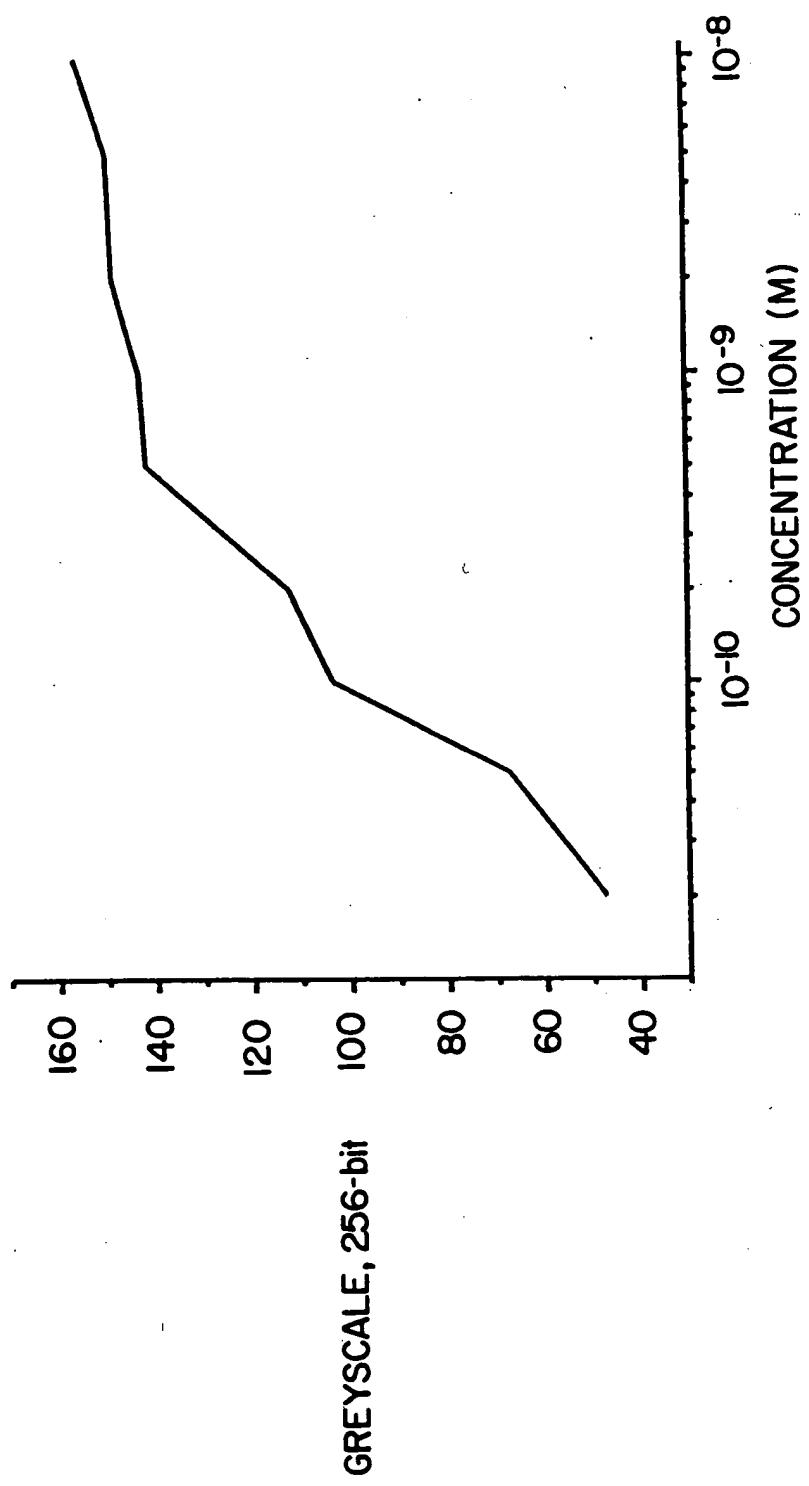


FIG. 34

FIG.35A

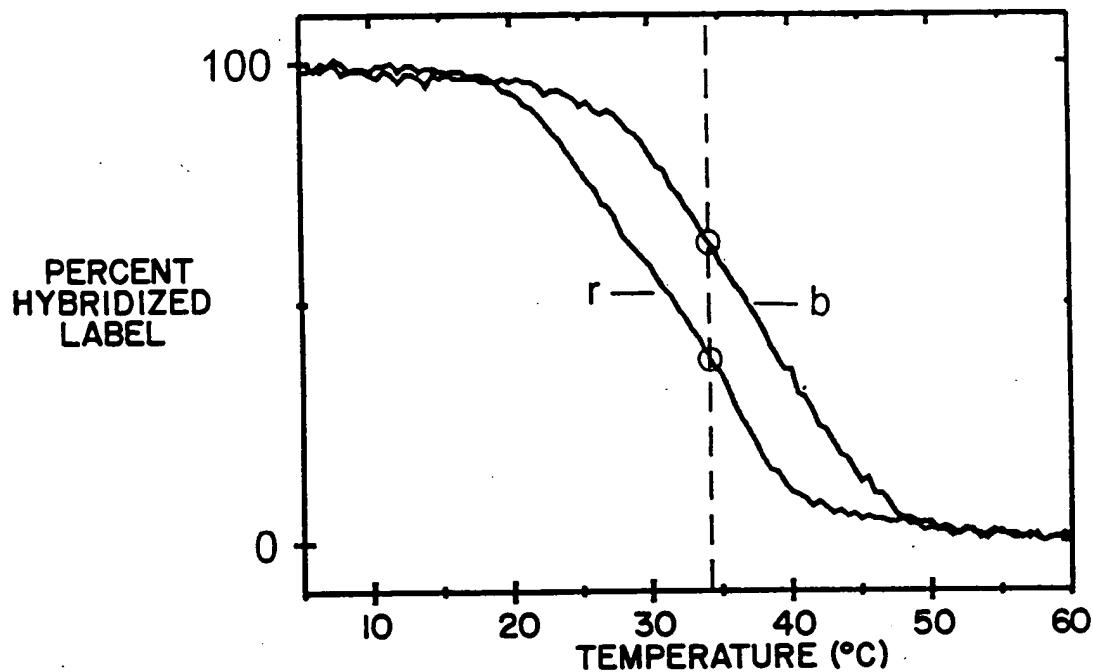
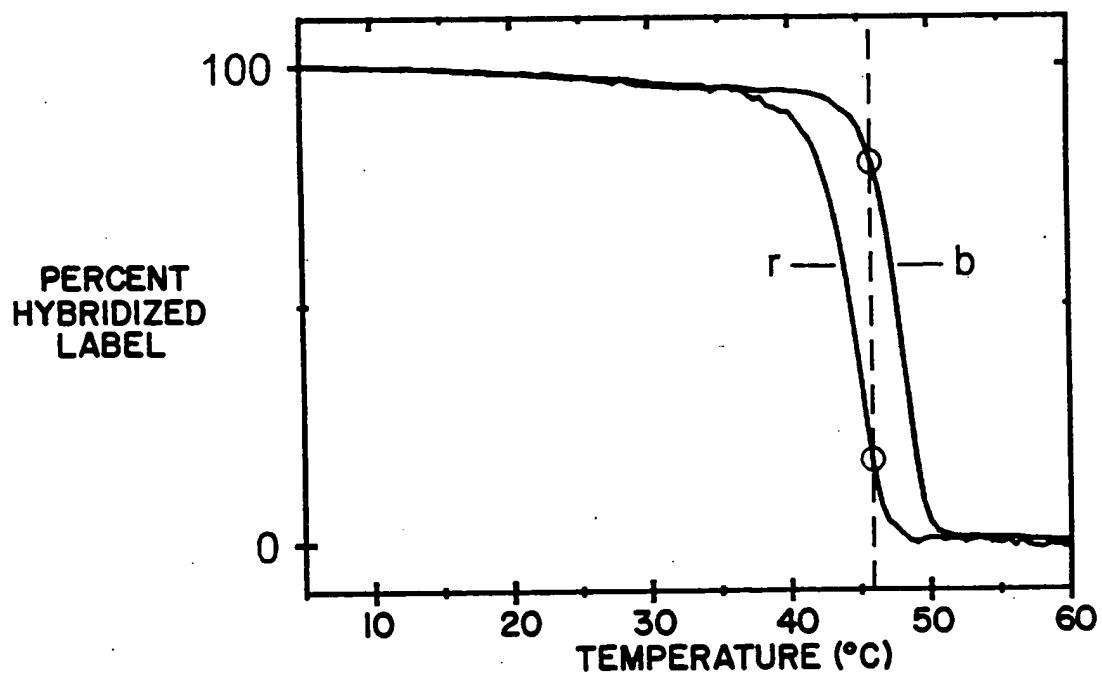


FIG.35B



BEST AVAILABLE COPY

FIG. 36A



FIG. 36B



C A T G

FIG.37A

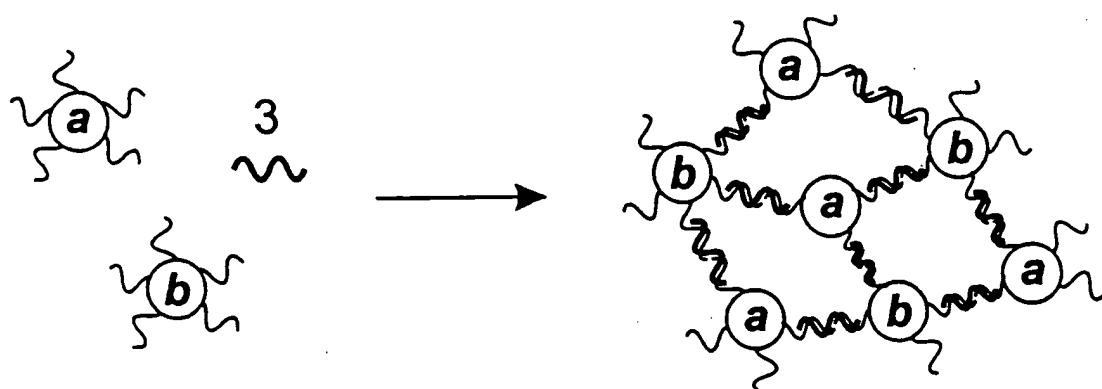


FIG.37B

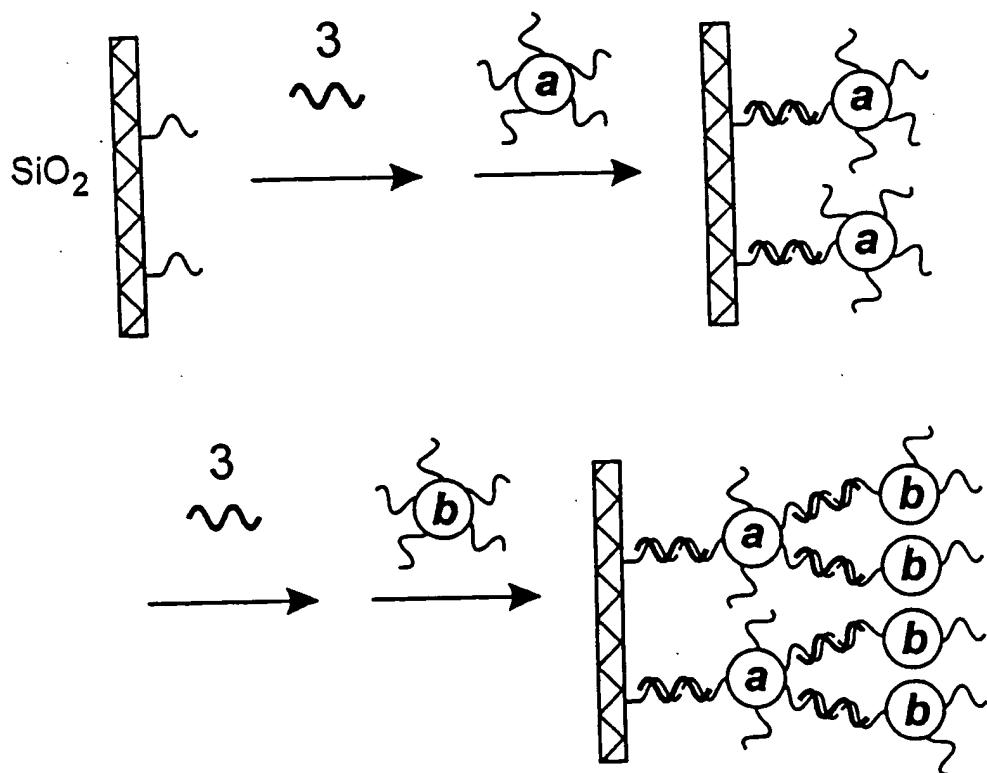


FIG. 38A

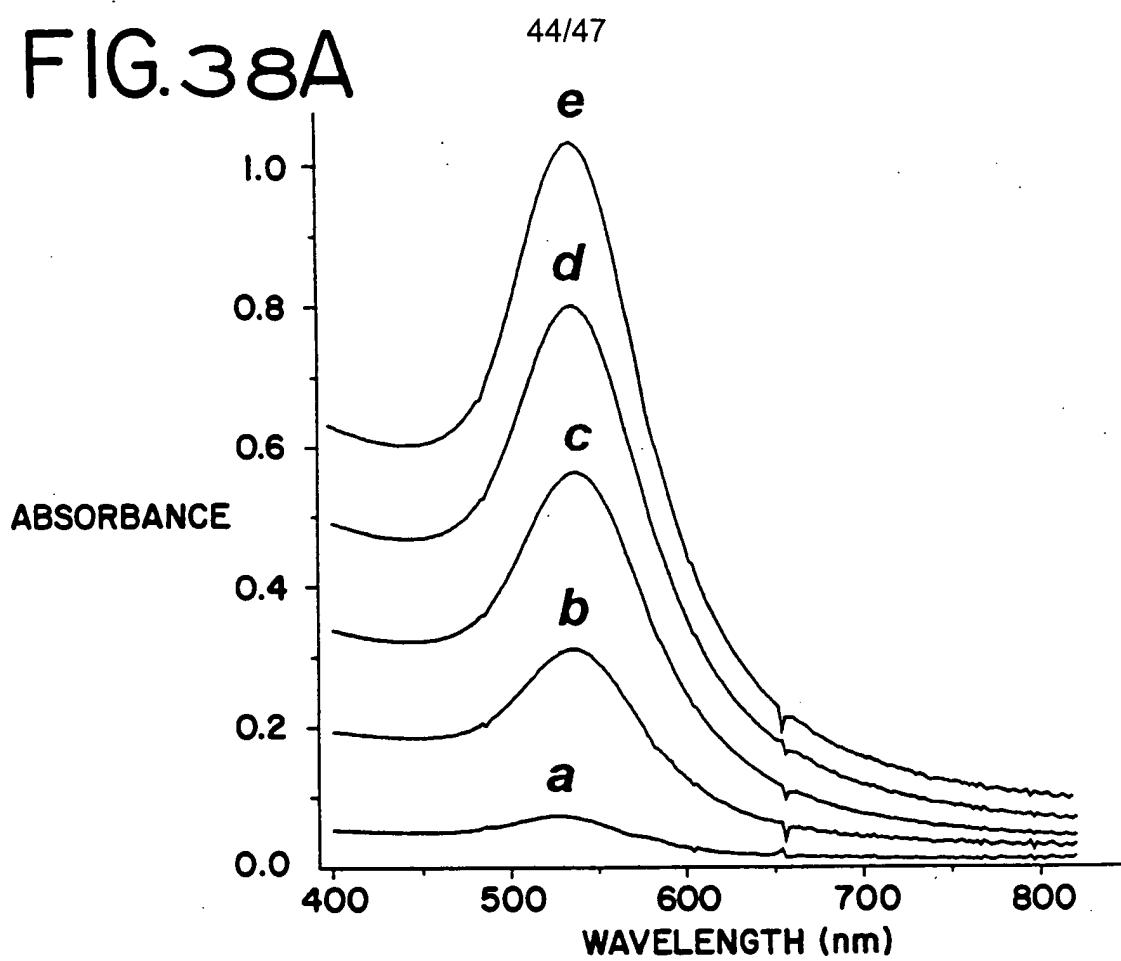
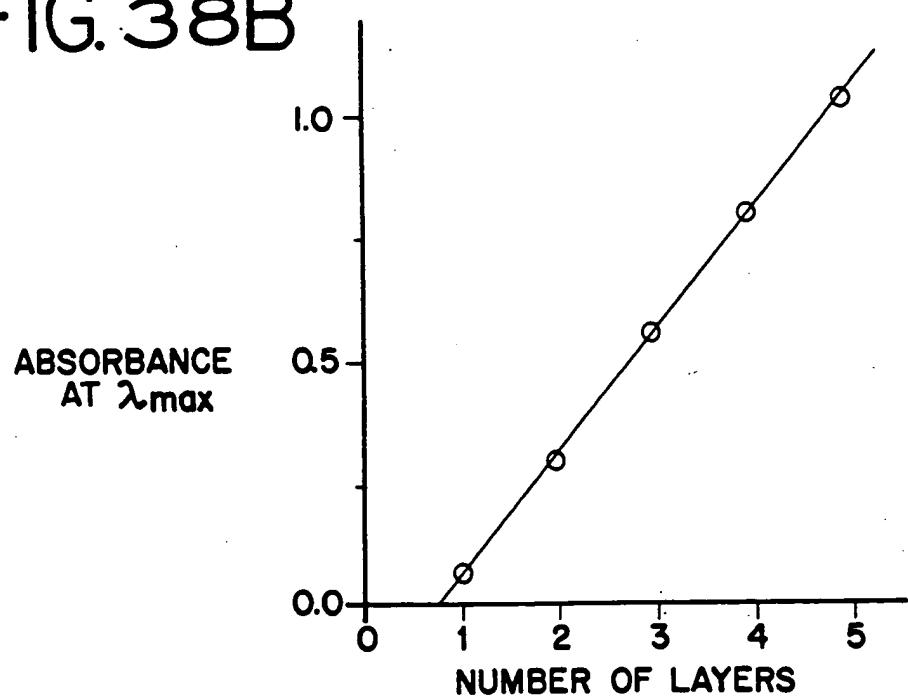


FIG. 38B



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FIG. 39A

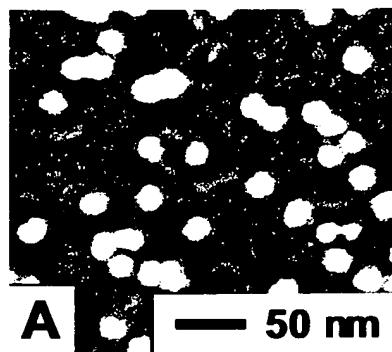


FIG. 39B

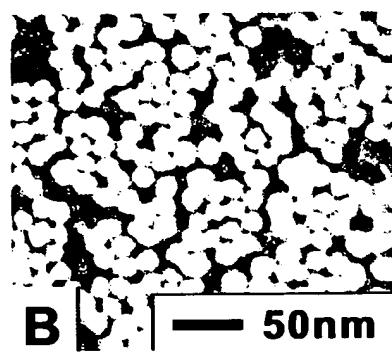


FIG.39C

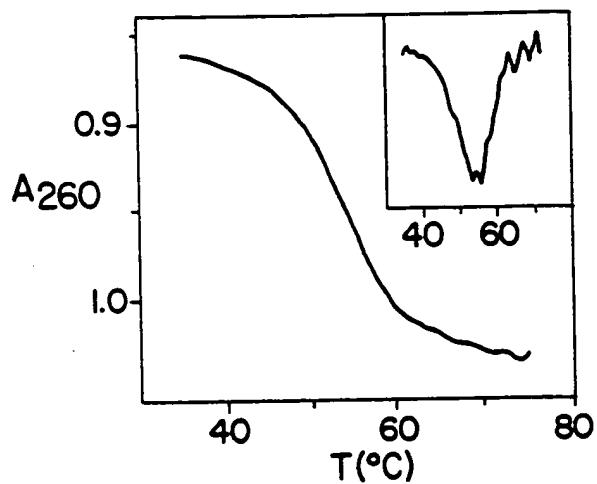


FIG.39D

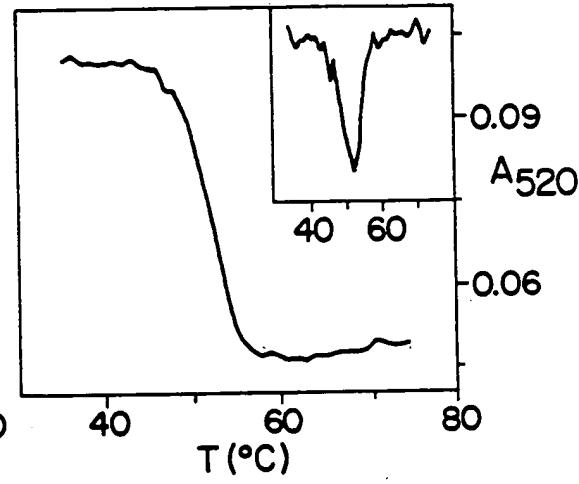


FIG.39E

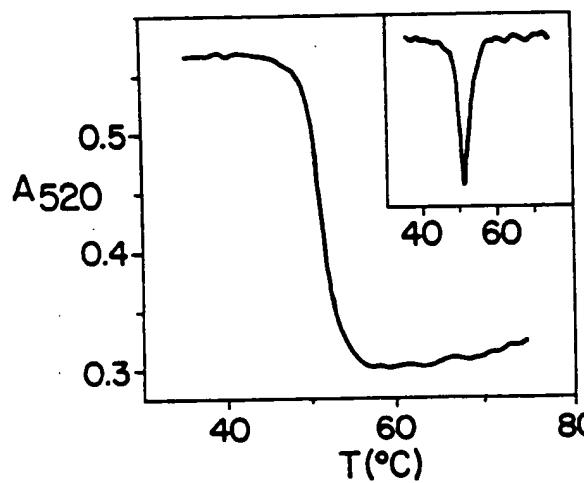


FIG.39F

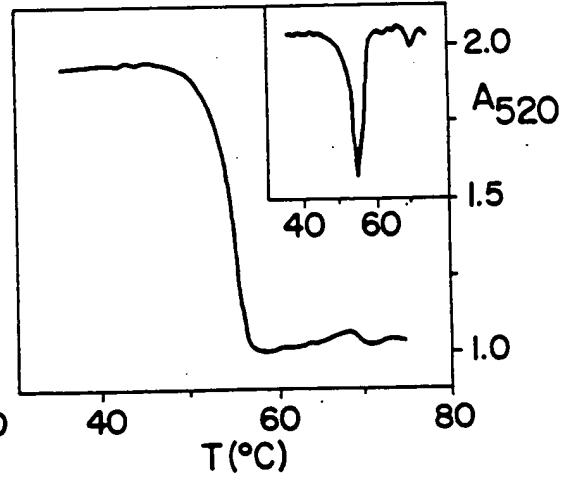


FIG. 40

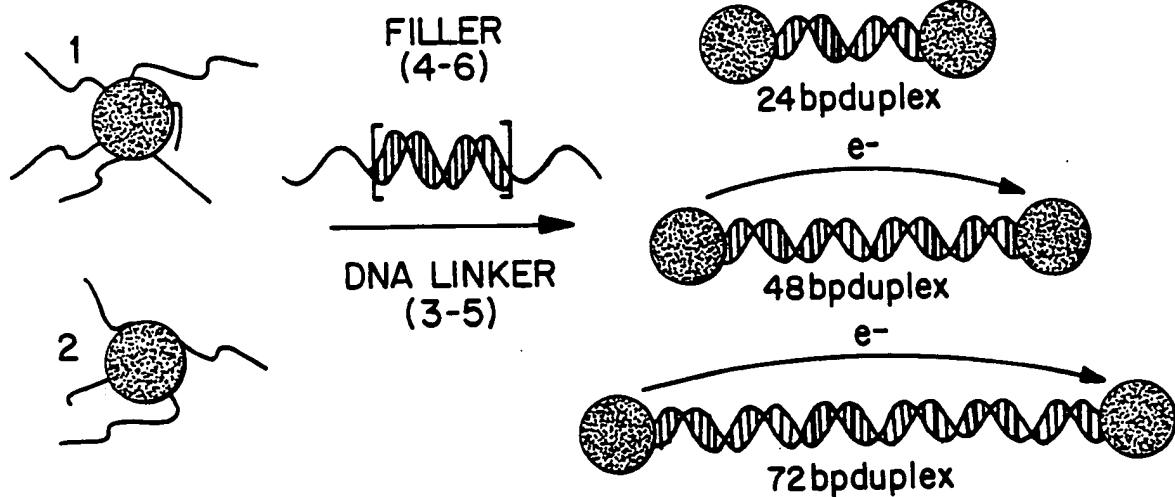


FIG. 41

